VOL. I. No. 3.

THE JOURNAL OF EDUCATION.

BROOKLYN, N. Y.

DEVOTED TO EDUCATIONAL INTERESTS, SCIENCE, LITERATURE AND ART.

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THE JOURNAL OF EDUCATION.

BROOKLYN, MAY, 1875.

THE PHYSIOLOGICAL REASONS WHY.

An Essay on School Hygiene, with reference to the Physiological Relations of Age and Sex to Mental and Physical Education, to which the Medical Society of the State of New York awarded the prize for 1875.

BY ALEXANDER HUTCHINS, A.M., M.D.

PART II.—THE MATERIAL.

SEX.

In the preceding section the relations between the physical and spiritual natures have been outlined; but the next inquiry is into the limitations imposed by sex in the development of these relations. The ideal types of man and woman are so generally recognized as essentially different, not only in physical structure, but in psychical manifestation, that it is pertinent to the studies of the physiologist to inquire into the nature of these differences, and deduce therefrom the principles in accordance with which the best relations between the physical and spiritual natures of each sex can be established. Indeed, in the current discussions of the fertile themes of woman's work and woman's education, appeal has been made to the physiologist, as to the tribunal of last resort, to furnish such a statement of principles, based on the ascertained facts of his science, as shall take this discussion out from the confusing speculations of visionaries and enthusiasts, into the calmness of scientific investigation.

Before *relation* can be satisfactorily discussed, *condition* must be known; and following out the argument of the previous section, that the body is the instrument of the mind, it remains to inquire how physiology differentiates sex in the human species, and what are the physical causes that preserve the essential peculiarities of the sexes.

The physiology of woman is not satisfactorily summed up in the enumeration of her physical peculiarities. The rehearsal of phenomena is not the *logos* of the phenomena. The order of the phenomena and the cause of the order are essential to a correct appreciation of her physiology. Neither is the distinctive physiology of woman delineated in the statement that the functional activity of her reproductive system modifies the functional activity of her entire organism. For this does not satisfy the con-

ditions of her development; does not explain the phenomena of healthy action, and does not touch the physical causes that regulate the whole procedure.

An investigation instituted to explain the physiological condition of woman, must proceed upon one of two assumptions: either that her physical and psychical phenomena, being in many particulars so widely different from man's, stamp her as a distinct creation, with laws *sui generis;* or that the human species, in development, maturity and decay, is a unit in structural elements, organism and function, and that sex is a modification constantly obedient to physical laws common to the species.

I. At the outset, one striking fact presents itself, viz.: that the structure and processes *necessary to the maintenance of the individual* are a factor common to the human species, and in the male and female individuals of that species are essentially the same.

Not only is there in the female a duplicate with the male for every organ, bone, muscle, nerve, and tissue, whose vital properties and functions are in exact correspondence, but the histogenetic elements of which these are composed are no fewer and no more than in the male. Respiration, assimilation, secretion, circulation and excretion in each are identical in kind, and operate in accordance with laws common to both. The special senses, sight, smell, hearing, taste and touch, essential to protection and maintenance, correspond exactly in structure, size, sensitiveness and power. Life is maintained through the appropriation of the same kinds of aliment, and they exist together under the most diverse climatic influences.

Whatever differences exist in the female, in all that is essential to the maintenance of the individual, are in extent of structure and intensity of function, and do not trench upon the absolute accuracy of the statement that in all that is thus essential, there is in both absolute indentity in kind. There is a difference in contour, but contour is only a result of the grouping of structures. The breadth of her pelvis may make her run queerly, the only ungraceful movement she does make, as some one has said; but the bones and the muscles, and the mode of their action, are the same as in the male.* She may have a generally thinner skin, a relatively larger cerebellum, a lesser weight of heart and kidneys, a smaller brain case, a quicker pulse and higher temperature than man; but the scalpel, the microscope, experimental physiology and chemical re-agents can discover in her no difference from man, in the quality of the structure and processes needful for their common maintenance.

If structure and processes are identical in kind, identity in kind is to be predicated of the stimulating and coordinating force.

Structure, function and force being identical in kind, identity of purpose (the maintenance of the individual) being constant, identity of type, for all individuals of the species, is to be assumed. In other words, the main-

*An elaborate exposition of the external physical peculiarities of woman, as compared with man, with a comparative analysis of her intellectual and emotional characteristics, is to be found in Elliotson's Physiology, pp. 609 to 707.

tenance of all individuals of the human species is provided for by a typical structure with typical functions, controlled by a typical force.

Although the male and female hold in common so much that is in precise identity, yet each possesses certain characteristics, peculiar to each, distinguishing each, and unfailingly recognizable in all periods of their history, irrespective of race, location, external influence and special civilization; and these persistent characteristics are, in every particular, a modification in size and intensity of the typical organism instituted for the maintenance of the individual, and common to all individuals of the species. The formulated proposition is that structure, function and force, being identical in kind, with constant modifications from a typical standard, identity of modifying cause, affecting development and maturity, is to be assumed.

By reversion of argument, the constancy of a modifying cause, with constancy of results, argues a common type.

From these propositions it is argued that the physical peculiarities characteristic of the male and female individuals of the human species constant to each, are to be referred to the operation of some constant cause, not essential to the maintenance of the individual, and this affecting cause must be resident in each individual.

II. *The continuance of the species* is a *capacity* of the species, and the provisions therefor are lodged in *two* individuals of the species. In some low forms of life, the entire reproductive apparatus is contained in each individual, and up through every grade its structure is elaborated, and its functions are specialized with the refinement of the species.

The organs necessary for the fulfilment of this capacity, in their distribution among two individuals, are constant in these individuals, and distinguish them as male and female.

Through all the higher grades of the animal creation, the distribution of the reproductive apparatus carries with it certain modifications of development in the nutritive system, the same in kind and analogous in manifestation to the modifications which accompany this distribution in the human species.

The capacity for the continuance of the species is, in no wise, essential to the maintenance of the individual. The facts of experience show that long life and continued health, are preserved in those individuals whose reproductive apparatus has never been aroused into its highest possible functional activities, and the facts of experience also show, that arrest of development, with the functional activity held in abeyance, or reduced to its minimum, is not inconsistent with the integrity of the nutritive system. This involves the conception that the typical structure has reference to the maintenance of the individual, and is the constant factor, irrespective of the continuance of the species, and irrespective of the quietude or excitement of the functional activities peculiar to the reproductive apparatus.

The reproductive system is the only system not the same in all individuals of the human species. The distribution is uniformly the same, as the rare

cases of more or less complete hermaphroditism belong to the class of monsters. The distribution in the reproductive system is a separation of the several parts of one organism, and not two modifications of analogous organs with special functions.

Therefore, without taking into account the CAUSE *of sex, and considering alone the* FACTS *of sex, it is to be assumed that the reproductive system is the constant cause operating to produce the physical peculiarities characteristic of the male and female individuals of the human species.*

III. The distribution of the organs of reproduction is *unequal* in the male and female.

While the formation of the ovum and the stimulation of the ovum are the elements essential to reproduction, yet in the human species the structures and the diversity of function which belongs to them, by means of which the whole process of reproduction is developed, rise to an elaborateness and complexity that has no parallel in similar organs in any other of the animal creation.

This inequality of distribution is manifest in the structures themselves (*a*), their location (*b*), the difference in effect on the nutritive system in their normal condition (*c*), the special duties required of them (*d*), the special character of their activity (*e*), the changes wrought in their highest development (*f*), and in the period of their active operation (*g*).

(*a.*) High organization, their functions characterized by activity, belongs to the essential portions of the reproductive apparatus distributed to the male, and of the subsidiary apparatus he has but a small portion; while vast preponderance of the subsidiary apparatus is given to the female, characterized, in the main, by low organization and passivity of function.

(*b.*) In the male, the distribution is external and in the nature of an appendage; in the female, it is altogether internal, and, structurally, an integral portion of her organism.

(*c.*) In the male, the normal condition intensifies the general nutritive operations; in the female, while the normal condition leaves the system at rest, the activity of its functional operations depresses the general nutritive processes.

(*d.*) In the male, the duty required is the deposit of a secretion appropriate to the stimulation of the ovum; the reproductive system of the female elaborates the germ, develops it up to its capacity for an independent existence, and provides for a certain period of its after-sustenance.

(*e.*) The functional process special to the male is a power capable of but one activity, and that only at its highest, held in abeyance, except under certain stimulation, and prompt in obedience thereto; in the female, the process is vital, periodical, involuntary and complex; subject to periods of rest and activity in one state, and yet capable of substituting that activity for another vastly different and more energetic.

(*f.*) The highest possible functional activity of the reproductive apparatus in the male involves no change of structure therein; in the female, this activity is accompanied by nutritive changes of development and involu-

tion altogether exceptional in character and extent.

(*g.*) In the male, the period during which the activity of his reproductive apparatus is possible is long continued; in the female, this period has a definite limitation.

The inferior distribution of the reproductive apparatus in the male, its independence structurally of his organism, the moderate effects of its normal activity on his nutritive system, the limited scope of the duties required of it in the reproductive process, the singleness of its activity without consequent change of structure, and the evenness of its possible activity through so long a period of his natural existence, compel the physiological inference that the reproductive system in the male individual of the human species affects his nutritive system to a comparatively slight degree, *and, therefore, the male individual of the human species represents the typical organism for the maintenance of the individual, and man in his best physical estate is to be taken as the type.*

On the other hand, the preponderance of the distribution of the reproductive apparatus in the female, its close affiliation with her organic structure, the depressing character of its functional activity, the extraordinary energy of the duties of which it is capable, the complex character of its activities, the extensive structural changes it undergoes, the periodicity and limitations in the exercise of its functions, make it physiologically inferential that the reproductive system in the female individual of the human species is the constant cause, modifying her physical structure from the typical organism for the maintenance of the individual, *and woman, in the utmost integrity of her organism, and in her most harmonious development of structure, is, so far as concerns the maintenance of the individual, a modification of the type.*

This physiological inference receives confirmation from the observed facts of the influence of the ordinary functions of the reproductive system on the organism common to the species. The establishment of puberty in the female, not only signalizes an increased death-rate in her over the male (1.25 to 1), but it is frequently associated with the occurrence of anaemia, from causes difficult to recognize, "when there has been no loss of blood, no deficiency in alimentary supplies, and no unusual expenditure of blood plasma."* It has been found as the result of extended experiments that during menstruation the process of nutrition slackens, the pulse is diminished in force and frequency, the temperature is decreased half a degree, and that the amount of urea eliminated is diminished over twenty per cent. These changes commence to manifest themselves one or two days before the appearance of the catamenia, and disappear a few days after their cessation.† After menstruation, "the brain and nervous system, the stomach and intestinal canal, are exposed to new and energetic influences, which, when abnormal, may give rise to disease, or the phenomena of disease, in these organs."‡ "Whether the due perform-

* A Treatise on the Principles of Practice of Medicine. A. Flint, M. D., p. 62.

† Dr. Rabuteau, Gazette Hebdomadaire, July 6, 1870.

‡ Diseases of Women. F. Churchill, M. D., P. C. D., M. R. I. A., p. 23.

ance of the functions of these organs adds to the health of the individual or not, it is quite clear that, during the period of activity of the sexual system, its derangements are most injurious, and that in proportion to the extent of the mischief."*

It is sound doctrine, that, as so great modifications are induced by disease of these organs, it is proper to infer that they are the result of a susceptibility, induced by some constant modification, related to the healthful exercise of functions. So, without accepting as a necessary and constant fact, the saying of Michelet, "*Que la femme est une malade,*" this physiological inference is again confirmed by the modifications of the common organism induced by menstrual *disorder*, and by *disease* of the reproductive organs. Clinical observation may determine the numerical ratio of certain diseases in the male and female, but deductions from the observed facts may be helpless to say why certain diseases should occur in one more often than in the other. It may be clearly shown why she should be more subject to chorea, but why should she possess so great an immunity from such a diasthesic condition as gout, is a mystery.† But the frightful list of neuroses which are intimately connected with menstrual disorder,‡ and the disorders connected invariably with uterine diseases, are matters of ordinary clinical experience, and crowd the pages of the specialist's descriptions. "Uterine diseases develop so great a number of symptoms called nervous or hysterical. The most varied forms of mental alienation, the most curious hyperæsthesias and anæsthesias of certain parts of the body, the most persistent neuralgias and spasmodic contractions, spreading often to numerous groups of muscles, claim if not always, at least very frequently, for sole cause, an affection of the womb."*

But, leaving as beyond question the statement that at and after the establishment of puberty, the reproductive system of itself, and by its normal and disordered functional activities, does operate as the constant cause giving rise to the physical peculiarities characteristic of the female, yet it is essential to inquire how the reproductive system can effect the marked differences that exist in the sexes *before* that period. It cannot be denied that many of the earliest developments of the child are such as belong to its sex. Not only is it the rule that girls speak earlier and more perfectly than boys, but the tastes, habits and manners are such as are characteristic of their sex in maturity.

To meet this inquiry, it is to be remarked that there is no structure in the human organism, which ultimately attains development, which is not to be found in a more or less rudimentary state at the end of fœtal life. Maturity is but full development. All structure is commenced *in utero*, though function may not be established. As there are *epochs* in fœtal organization, so there are *periods* in development.

Again, it is to be remarked, that the rudimentary is but the initial stage of

* Diseases of Women. F. Churchill, M. D., P. C. D., M. R. I. A., p. 25.

† Flint's Practice, p. 843.

‡ Obstetrical Journal of Great Britain and Ireland, January, 1874, p. 134.

* Scanzoni, p. 33.

perfected growth. In organic life there is no period of rest. There is perpetual change. Development or decay mark every stage of organic life. Arrest of development is death or deformity. From the earliest organization of the dental pulp to the shrinking of the alveolar process in the whitened head of age, the renewal of tissue is a substitution of new for old.

Not less applicable are these physiological maxims to the organization and development of the reproductive system. The continuance of the species is provided for long before the child is born that is to be the mother of the coming race. Provision is made for its lodgment; the general contour is modified to suit the emergencies of the future years; such depressions in the development of the rest of the organism are provided for as shall insure harmony of action, when its maturity shall be reached, and its activity begun; waste and repair of its substance date from its earliest inception; and renewal upon renewal occurs again and again during the long quiet of its development. And so, what is true of the processes of the organic life of the reproductive system in its perfected organism is measureably true of all the antecedent stages of its history.*

The sum of these physiological conclusions is that there is a typical structure common to the human species for the maintenance of the individual; that the physical peculiarities, characteristic of the male and female individuals of the human species, are the result of the influence of the reproductive system on the common organism, and that the reproductive system is for the continuance of the species and not necessary to the maintenance of the individual; that the distribution of the reproductive apparatus is so markedly unequal in structure and aggregate of function, slight in the male and preponderating in the female, energizing in the one and depressing in the other, that man is to be regarded as representing the typical standard of nutrition in the human species, and woman from her original organization, through the whole history of her development and maturity, in the structure and operation of her organism, as a modification of the typical standard of nutrition, *by reason of there being associated with the entire history of her nutritive organization and development, the organization and development of her reproductive system.*

IV. The general fact being stated, that the physical characteristics of woman are the result of the influence of the development and operation of the reproductive system on the nutritive system, typical to the species, the next inquiry in the investigation of her physiologic condition must include the principles in accordance with which these modifications are affected.

(*a.*) The lower the descent in the scale of the animal series, the nearer the approach to that state of *homogeneousness*, which is the typical attribute of inorganic bodies, and wherein there

* See the Genesis of Woman, by Dr. E. Van Der Walker, Popular Science Monthly, No. xxvii, wherein he takes the ground that the crisis in female life is not functional, but structural. The sexual organism is formative and not paroxysmal. He argues, therefore, that too much stress is laid on the crisis of puberty, to the neglect of the needful care up to puberty.

is no distinction either of tissues or organs; on the other hand, in the ascending scale, there is a "differentiation of the body into organic systems, and of these again into separate and more individualized sections,"* until the principle of *specialization* is carried to its highest degree in the organism of the human species.

This upward series is characterized, not by greater bulk, but by the acquisition of new forms and structures.† Above form and structure, is the capacity for manifold appliance. The hand of the ape is a lower organization than the hand of man, by reason of its limited capacity of appliance. As has been shown, the elemental structure is distributed throughout the entire organism; and the different adaptations of the various structures, while they act in obedience to laws vital to themselves, are dependent on the motive power applied to the general organism. The reproductive apparatus is nourished by the same fluid, stimulated by the same force, carried by the same organs, emanating from the same centre, that stimulate and vitalize the rest of the organism.

Admitting the lower grade of some portions of the reproductive system, yet its processes of growth and repair are affected by the laws that govern the general nutrition. "An eliminative function is to a certain extent brought about by all the processes of growth, and there can be no change, however limited, that is not necessarily associated with a general one in the system at large."‡ Every organ, to secure its proper development and perform its appropriate functions, must have a due proportion of nutrition.

It thus appears that the female organization, by its additional structures possessed of special capabilities, and in similarly intimate and necessary dependence on the general nutrition, advances by so much in the specialization of structure, and is the higher organization. Higher organization involves essentially a modification of type.

(*b.*) The physical condition of woman being characterized by higher organization, it remains to inquire how the general nutrition is affected by the increased specialization of structure.

While the later development of the nervous system renders it highly probable that it has but a slight and indirect influence in the development of structure (this process being carried on in accordance with certain special, inherent, vital powers), yet, in addition to the recognized phenomena of healthy action, the disturbances consequent on pathological change are sufficiently suggestive of the extensive influence exerted by the nervous system in harmonizing and regulating the functions. The processes that in health are hidden become patent in disease. That which promotes smoothness and repose in the normal state, in abnormal conditions is the agent of widespread and tumultuous anarchy. In one way

* Principles of Comparative Physiology. By W. P. Carpenter, M.D., F.R.S., F.G.S.. § 18.

† Paget's Surgical Pathology, p. 26.

‡ Bennett's Practice of Medicine, p. 135, following the idea of Trevianus, viz.: that each single part of the body, in respect to its nutrition, stands to the whole body in the relation of an excreted substance. Ditto, p. 154 for examples.

and another all the tissues, no matter what their distribution, seem to be influenced by the nervous force in their nutrition.

It does not concern the present argument to discriminate between or inquire into the comparative predominance of the motor or sensitive nerve fibres of the cerebro-spinal system, or of the ganglionic system, in the processes of organic and animal life. For, "however much we may differentiate the nervous and nutritive functions, the fact still holds that they are inseparably connected."* Some nervous force is exercised in the nutrition of all the parts, in or near which nerves are distributed, in accordance with the general law, "that the interdependence of parts augments with their development; for high organization consists not in mere multiplication or diversity of independent parts, but in the intimate combination of many parts in mutual maintenance.†

In the higher classes of the animal creation, the dependence of independent parts of the organism, in their varying activities, is provided for by the controlling and harmonizing influence of a central power. The elaborate structure of the cerebro-spinal and ganglionic system is the source and medium of that power in the human species, and the general law of the distribution of force is equally applicable to the higher organization of the woman. The amount of the nervous force is dependent on the integrity of the nervous system. The manifestation of the force varies with the distribution of the system. Strength is dependent on concentration; delicacy on diversity of distribution. The nervous system acts on organic life as a co-ordinator. The more complex the organism, the more complex is the interdependence of the various organs, and the delicacy of the interdependence varies with the extent of the distribution of the force.

It has already been made out that the structural characteristics of woman are due to the co-ordination of her reproductive and nutritive systems in organization and development, and the argument for her higher organization, with its consequent more delicate balance in mutual maintenance, is equally explanatory of her functional characteristics.

(*c.*) It has been shown that the reproductive system is in no sense essential to the nutritive; that it is entirely dependent on the nutritive system, and that its operations connected with the operations of the general organism through the medium of the nervous system, under the law of the distribution of force, render more delicate the balance of the nutritive functions. The case is complicated by the well-ascertained and strictly accurate physiological fact of the *antagonism* between the nutritive and reproductive systems. Though a matter of ordinary clinical experience, the general law has been well stated by Carpenter, "that the development of the individual and the reproduction of the species stand in an inverse relation to each other,"* and again, "the generative apparatus derives the materials of its operations through the the nutritive system, and is entirely

* See Dr. Brown-Sequard's Lowell Lectures, No. 6. 1874.

† Paget, p 53.

*Carpenter's Physiology, § 848.

dependent on it for the continuance of its activity. If, therefore, the generative activity be excessive, it will necessarily draw from the fabric at large some portion of the aliment destined for *its* maintenance. It may be universally observed that where the nutritive functions are particularly active in supporting the *individual*, the reproductive system is in a corresponding degree undeveloped, and *vice versa*."*

Generalizing again, the more specialized the organism, the higher the organization; the more specialized, the greater the need of a central co-ordinating power; the more antagonistic the specialized functions, the more delicately balanced the distributed force, and the more easily disturbed.

From the arguments and principles thus far adduced, the physiological condition of woman has been shown to be a *higher organization, the resultant of the co-incident organization and development of her more numerous and specialized structures, the maximum resistance of the sum of whose nutritive processes is lowered by the wider distribution of the nerve power, by which the functional operations of her organism are controlled and harmonized.*

V. By the foregoing argument it has been made out that the maximum resistance of the nutritive processes of woman is lessened by the co-ordination therewith of a system whose functional activities are *antagonistic* to her nutrition. The case is still further complicated by the physiological fact that these functional activities are not only *antagonistic* but *not constant.* The reproductive system, operating under conditions vital to itself, has an ordinary activity rhythmical to itself, but irregular as to the constancy of the nutritive processes, and therefore irregularly disturbing the balance of the co-ordination of function. But the occasional display of its highest functional activities produces a disturbance vastly more profound, which not only modifies the nutritive processes, but affects to a still larger degree the *results* of those processes.

But the argument thus far is incomplete. It alleges, by the collocation of physiological facts and inferences, that woman is constitutionally different from man in the maximum of her resistance, a scientific no less than a popularly-recognized fact; a difference recognizable irrespective of race, nationality, clime, or civilization.

Before her special relations can be submitted to intelligent investigation, the physiological law of her economy must be inquired into.

What is the physiological and structural law in accordance with which is produced the *uniformity* of the physical characteristics of woman?

It has been found that histogenetic element, tissue, and organ, necessary for the maintenance of the species, are precisely identical in kind in the male and female individuals. "The essential character of any tissue or organ, being maintained up to the limits of healthy (co-ordinate) growth, function increases with substance (quantity)."*

In animals wh se muscular movements are more simple, as in fishes, the spinal cord is slighter, and the grey

* Carpenter's Comparative Physiology, § 92.

* Paget.

matter, as well as the ganglionic cells, is much more scanty, as fewer combinations of movement are required.* The inference is, that the nervous system being so nearly identical in quantity in man and woman, that similar combinations of movement are required with her as with him, and that the system being the same, the force is an equivalent. Extent of system and equivalency of force argue similar capacity for results.

The complete integrity of the physical organism involves the conception of an amount of nervous force exactly suited to the demands of the nutritive system, accurately adjusted, *and constant in action.*

The antagonism of the generative and nutritive systems involves the necessary conception of the disturbance of a co-ordinating force.

The nervous force applied to the purposes of the nutritive system (neuro-muscular, organic) not controlled by the Will, is constantly in operation. The special development and periodical activity of the reproductive system, independent of the nutritive, and yet influencing it, because itself influenced by the force which ministers to its support, begets the conception that if the nutritive system of the female were in quantity up to the typical standard of the species, the nervous force necessary for the development and functional activity of the reproductive system. must be under the control of the Will; or that, at certain periods in the life of the woman, and particularly during the intermission of the functional activities, a portion of the nervous force is dormant; or there must be an excess of nutritive activity at all times except during that functional activity. All these conceptions are untrue.

The final conception appears that in woman such a share of the typical nervous force is withdrawn from the functional activities of her nutritive system, as is requisite to serve the purposes of the development and support of her reproductive apparatus and the fulfilment of the energies vital to itself.

The integrity of the nervous system being dependent on the harmonious action of all the organs which it influences, and is, in turn, influenced by, disturbance in the functions of one influences the integrity of every other. "It is a fundamental law of the distribution of the vital powers, that when they are increased in one part, they are diminished in all the rest of the living economy; that the sum is never augmented, but that they are necessarily transported from one organ to another, and, therefore, to increase the powers of one organ, it is absolutely necessary that they should be diminished in another."*

It admits then of no question that in a congeries of connected organs, any one of which is subjected to periodical or irregular action, the connected organs must undergo some modification of functional irregularity, not only during that period, but during the time necessary for the recovery of the equilibrium which it lost by the action of the disturbing force. Of course, it will be readily perceived that these periodical func-

* Prof. Schroeder Van Der Kolk on the Spinal Cord and Medulla Oblongata, pp. 64 and 80. See also p. 66.

* Bichat, Physical Researches on Life and Death.

tions, if performed in exact accordance with the vital laws governing the structure of the organ, would reduce to its minimum the disturbance of the regular and unintermitted functions of the associated organs, provided that these functions were performed in perfect harmony with the vital laws governing the special structures; but, nevertheless, it cannot fail to be recognized that the minimum of disturbance must *always hold*, and that the amount of the disturbance must vary directly with the integrity of the associated functions. And this reasoning can only proceed on the assumption that the amount of nervous force in the ideal being of the human species is just adequate to the co-ordination and direction of its nutritive system, considered as for its own maintenance; and that the reproductive system designed for the continuance of the species, both in respect to the unequal distribution of its necessary structures in two individuals of the species, and in respect to the proportionate activity of its functions, in either part of its distribution, disturbs, to that degree, the harmony of the nervous and nutritive systems.

In the structural process to provide for the development, support and special energies of the reproductive system in woman, one of two modes had to be provided. Given to her nutritive system a development and activity similar to man's, the additional nervous force required to satisfy the demands of the reproductive system, for the perfected display of all its possible energies, would have at once necessitated proportionate increase of size in the main trunks of the organs conveying the nervous force, no less than a proportionate increase in the nervous centres themselves. The harmonious structure of the human form would have demanded proportionate increase of her entire body, and woman, instead of being the "lesser man," the historic fact, long before Tennyson penned it, the horrible suggestion of the giant woman looms up from out the argument.

But give to her a sum of nervous force equivalent to man's, and so distribute it that it shall serve the purposes of organic and animal life, with her as with man, as well as serve the purposes for which the reproductive system was established, and her lesser size, the less intensity of her animal functions, the marked susceptibility of her nervous system,* which are the historic facts of her economy, are submitted to a rational explanation.

Therefore, the cause of the physical characteristics of woman is to be found in her higher organization, from the muitiplicity of structure, and her more widely-distributed nervous force, with its consequently more delicately-balanced character; the aggregate of the distributed nerve-force being the typical sum needful for the maintenance of the individual.

VI. The discussion thus far has been restricted to the *physical* characteris-

* "The greater the amount of nervous force, the less the excitability there is, and *vice versa*, the greater the excitability the less amount of nervous force. There is, therefore, something quite distinct in these two things—excitability and nerve force. This property of excitation is nothing but the power to receive an excitation. Persons who are extremely strong will not generally be moved by excitation. They will, of course, appreciate the excitation; they will judge what it is; but they will remain calm under it. While, on the contrary, persons whose nervous system is weak, and who have little nerve force, will re act under any excitation, however slight, without giving the mind time to think what the excitation is."—*Dr. Brown-Sequard, Lowell Lectures, 1874, No. 2.*

tics of woman. If there are any essential distinctions in the mental and moral nature, occasioned by sexual differences, satisfactory evidence has yet to be produced; and, though this discussion is limited to the physiological status, in view of what has been urged, it is to be asserted that sexual differences are of the material nature only. For, if the species be regarded as a physical and psychical combination, and the accepted facts of the relation between the nervo-muscular system on the one hand, and the emotions, intelligence and the will on the other, be considered; and if it be conceded that the material nature is but the instrument for the development of the immaterial nature; and, also, that physical conditions modify psychical states, and that psychical states do influence physical conditions; and that the nervous system, emanating from the brain, is the medium of this interchange; it follows, at least, that the harmonious action of the nutritive system is essential to the best psychical operations. It follows, likewise, that disturbance, from whatever cause, of this harmony of action in the nutritive system, must affect the psychical operations. In short, that the integrity of the psychical operations must vary directly with the integrity of the nutritive system. Add to this, that while the reproductive system is, in no sense, essential to the maintenance of the individual, the consideration that the psychical development is influenced by the mental and moral discipline, evoked by all that is involved in the continuance of the species (a discipline that would be entirely unknown were the maintenance of the individual alone provided for), and that this development is in direct relation to the conditions demanded by the special distribution of the reproductive apparatus, and it will follow, not only that the unequal distribution of the reproductive system varies the conditions of psychical development, but that the special psychical development must, in its own way, affect, in a peculiar manner, the physical organism with which it is associated.

To revert again to the law of distribution: concentration intensifies and distribution weakens. The same force exerted over a multiplicity of organs not only weakens its intensity in each, and shortens the period of resistance, but demands for each a greater sensitiveness, and necessitates an increased liability to derangement. Even though the rhythmical activity of the reproductive system be understood only as a fact of experience, yet, as such a fact, on this reasoning, it is clear that the disturbance of the nervous system thereby induced, by all other analogies of the human economy, must affect to an extent more or less appreciable, the functional integrity of all the associated organs, which, in the case of woman, means her entire being. Not alone in common with man in organic disease, and more or less extreme functional disorder, when the general functions of animal life participate in sympathy, and the steadiness of judgment and the calmness of the moral sense are swayed, but the *perturbations*, which are the uniformity of her being, are the key-note to the music wherein is expressed the harmony of woman's physical and spiritual life.

VII. Reverting again to the law of growth, viz.: that where the nutritive functions are particularly active in supporting the *individual*, the reproductive system is in a corresponding degree undeveloped, and *vice versa*, the converse of this law suggests an element of great importance in confirmation of the principle, the truth of which this argument is endeavoring to establish.

It is ordinarily held that woman develops somewhat earlier than man, and the inference is that she must grow more quickly. The statement is unquestionably correct, if her earlier development be made a standard of comparison with her full development. From the age of puberty there is a marked difference in the development of girls and boys, as respects *suddenness and speed.* There is an equally marked difference in the *continuance and extent* of this development during the years succeeding puberty. The girl develops into the woman and stops. The boy makes slower progress into manhood and reaches a greater development.

What is the physiological explanation of this constant fact?

The development that occurs between infancy and puberty is vastly in excess of the development that occurs between puberty and the period of mature growth. During this period the growth of the healthy child is altogether symmetrical. It includes the period of the most rapid increase of substance. Rapid growth that occurs after that period is usually at the expense of the general vigor. What are the precise vital conditions *essential* to the establishment of puberty, is not known. But, in view of the general law of relation between the support of the individual and the development of the reproductive system, it is clear that the establishment of puberty is *associated* with a nutritive epoch. "Although disorder of the menstrual function is one of the most common phenomena of female youth, yet it is, undoubtedly, to be looked upon more frequently as a symptom of general defective nutrition (and especially of an impoverished condition of the blood) than as itself constituting a disease."* "It is strange to assume that the generative function should come into play before the nutritive processes so essential to the welfare of the individual have been perfectly consolidated. Such an assumption is opposed to the spirit of all sound physiological reasoning. There can be no more fertile cause of delicacy than the premature approach of menstruation. Such an event often engenders disease by drawing off the vascular and nervous energy, so essential to the consolidation of the functions of nutrition and growth."†

Either the age of puberty indicates such a line of demarcation between the rapid growth of childhood and the slower development of adolescence, that the reproductive system is enabled to assert itself, or, that the reproductive system has, at that period, attained such a development as enables it to oppose itself to the nutritive processes. The former hypothesis is probably correct, but the argument is concerned only with these two general facts, viz.: that childhood, in both sexes, comes up to the period of puberty in

* Carpenter's Physiology, § 979.

† F. T. Porter, L. R. C. S. I., in the Obstetrical Journal, April, 1874, p. 55.

similar development, and that, from that period, there is in the two a divergence in the nutritive processes. The man and the woman develop on different paths.

Couple with this what has been urged as differentiating the effects of the unequal distribution of the reproductive system in the two sexes, and it is clear that the *establishment of puberty in the girl is not only coincident with an arrest of nutritive development, but is the cause of that arrest.* From that epoch the nutritive functions are in abeyance.

So this earlier arrest, which is substantially the woman's earlier physical development, explains her more rapid mental maturity. That, at the same age, the girl is more mature than the boy, is accepted. Not only are her intellectual operations quicker, but, by consequence, she has amassed a greater aggregate of intellectual experiences, rendering her judgment more mature. Her physical development has brought into exercise a *greater number* of her psychical capacities.

VIII. But the more widely distributed nerve force, the antagonistic influence of the reproductive system, and the earlier arrest of the nutritive development, to which are referable, directly, the physical, and indirectly, the psychical characteristics of woman, and which constitute the physiological law of her being, do not in the least degree affect the integrity of her being. Her hold on life is stronger than man's. "The vital tenacity of woman is superior to that of man, as is well proved by the greater facility with which she bears deprivation of food or submits to bodily torture and anguish of mind."*

Nervous force has only a certain relation to vital force. Nervous force has its variation in sensitiveness; vital its variation in resistance. Nervous force varies with the integrity of a system; vital with the integrity of a congeries of systems. Vital tenacity bears no fixed relation to nervous susceptibility. The most exquisitely sensitive may or may not be of high vitality—the latter varying with the integrity of an entire organism; the former manifested indifferently in healthful or diseased conditions. So, while the superior vital tenacity of woman is a matter of clinical experience, it is likewise a logical sequence of her organization.

Woman, therefore, is a law unto herself, and the conditions of her best physical and psychical development are imposed by the laws of her organization. To produce her best estate, the appliances of the better civilization must be adapted to those conditions. One part of her may be developed at the expense of another, and her characteristics, as woman, may be indefinitely modified by the varying circumstances which influence her life; but this cannot militate against the demands of the physiological laws by which her being is regulated, and in accordance with which, if at all, the best intent of her life is to be realized.†

The ideal woman is not the dream of poetry, but a reality of flesh and blood; a material organism animated

* Tilt, Introduction to Diseases of Menstruation.

† At the late meeting of the American Medical Association, held at Louisville. Ky., May 5th, 1875, Dr. Allen, of Lowell, read a paper in which he claimed that the truly normal standard of womanhood was that of the highest anatomical development and of the greatest physiological excellence.

by an immortal spirit. It would be unfair to stamp her as the typical woman, who, browned and toughened by labor in the field, fulfils the grosser duties of her calling, and rests her aching body on the mattress of husk, renewing day by day this ceaseless toil, and for whom there is naught but toil; as it would be unfair so to typify the purple-veined transparency of some etherial sainthood in woman's form, who, wrapped in silken seclusion, knows naught of the freshness that animates created things, and cares naught for the struggle out of which men hope to see the light.

Her individualities are more strikingly developed as she emerges into civilization from the repression of barbarism. "Observations prove that women who are not exposed to depreciating influences can compete in strength and endurance with the men of their races, and in savage countries they are sometimes regarded as superior to them." "The human female, if properly developed and placed beyond causes which militate against her physical well-being, would be in no great degree the inferior of the male; but the customs of civilized life have depreciated her powers of endurance and capacity of resisting disease."* Upon her advent into civilization, she changes infinitely more than the man does, evincing her greater sensitiveness to external influences,† and her greater susceptibility to the action of external agencies.

So if, under the higher influences, the predominance of the nervous system, activity of the imagination, intensity of emotion, and a greater sensitiveness became manifest, these do not mean that she has a nervous system and no stomach, lungs and no liver, emotion and no intellect or will, sensitiveness and no ability to endure; but it does teach that she has certain disturbing influences to avoid, so that her bodily vigor may be a fit medium for the co-ordinate development of her intellect and emotions, and so that her sensitiveness may be trained into effective ministry.

Finally, this later civilization will not brook with impunity, or in silence and without protest, the sneer of the ages, which has been flung out in the adage, *propter uterum, mulier est;* the implication being, *uterus, et præterea nihil.* If the foregoing outline of the physiology of woman holds within itself any accuracy of description, it must establish the fact, that in the general functions of the human body the maintenance of the individual stands *first*, and *then* the continuance of the species; that the former is a constant and necessary factor, and the latter exceptional and contingent.

Just as truthfully can it be said of man as of woman, that it is his mission to give birth to mankind, for, in the economy of things, one is as essential as the other to the result; and just as certainly is it true, that his energies are expended, correspondingly with her's, in providing for the born and unborn generations. That the duties required are different, that the pyschical natures are differently impressed by the conditions these duties impose, are unquestionable truths. But to assert that her share in the continuance of the species involves more than *one*

* T. G. Thomas, M.D., Diseases of Women, p. 53.

† See Hodge on Diseases of Women, p. 71.

of her capacities is to contradict the facts of her physiology.

The wrath of some of his critics came down hot on the head of a medical gentleman, who, lately, with rare good courage, bent a valiant bow in demanding that periodicity should have due consideration in the schemes of female education. And, without doubt, periodicity will henceforth be taken into account. But regard to the periodicity is urged only as one of many hygienic measures that the integrity of the body may be so saved from harm, that the psychical nature in the woman may have the broadest and most excellent culture. Under a wise discipline and guidance, conducted by processes devised to strengthen, and not impair, her physical well-being, processes that take herself into account, and not another, this culture promises for the future far more than has as yet been known.

DEVELOPMENT.

Growth and development are the physical characteristics of the period during which the body and mind are submitted to the educational process.

The epochs of this period are second dentition and the establishment of puberty; each resembling the other "in the increased development of the nervous centres and in the specialized evolution of nervous force."

Maturity and development are each subject to waste and repair. In maturity these processes are balanced. In the adult, the whole operations of vitality may be comprised in the preserving and recuperative processes. In the formative period, the *constructive* is in excess of the *destructive*.

The excess of the *constructive* is greater up to puberty, though the germinal capacity is not exhausted till full growth is attained.

All the parts of the organism do not develop with the same proportionate activity. The brain grows more actively than any other organ. From a weight of ten ounces at birth, to three and one half pounds in the adult, there is a rapid increase up to the seventh year, and then a steady decline in the progress of the increase till its maximum weight is acquired.

Childhood is the period of the greatest functional activity. "In the child everything predominates that is connected with organic growth, and of necessity with a redundancy of vitality, and on which alone the growth of the body depends. The desire for food is frequent, the digestion is rapid, the blood and all the fluids are in great excess, capillary action, secretion, deposition and interstitial increase proceed with great vigor, while the nervous sensibility is in the highest activity."*

The rapid increase of the brain explains, what observation proves, that in youth the nervous system predominates. All vital operations have their source in the nervous system, and all those actions by which the development of the organization is effected are directed by, and derive their energy from, the nervous system.

The capacity for resistance is in an inverse ratio to the rapidity of growth. It is a fact of common observation that the child, whose growth has been in advance of his years, will bear with less impunity loss of sleep, abstinence from food and extra hardship, than

*Stewart, Diseases of Children.

the child whose development has been more gradual. And this holds more particularly true as a physiological fact, when the growing child is compared with the adult whose formative processes have been completed. Though this is a physiological law, it is, at the same time, so easily apprehended by the most cursory observation, that no more urgent proof is required of the popular ignorance of the laws of health than the utter disregard of this maxim in the care of the young. The combinations of food that are allowed to children, the strain upon them in the over-excitement that is permitted in the name of pleasure, are as lamentable as the cupidity of parents in forcing the young into hard labor, or the mistaken sense of duty in whose name they are subjected to exhaustive brain work, are blamable.

Whether a man or a child turn a grindstone will depend whether it sharpen an axe or a penknife. What is true of nerve and muscle is true of organ and function; but then the organ itself is a varying quantity during development, and the stage of development varies its resisting power. As a matter of size, the child's stomach is smaller than the man's. It is a physiological and mechanical inference that it cannot do the work of a man's. But then the force that is back, by whose energy the digestive fluid is secreted, is less powerful in the child. And, still further, there is the rapid change to repair waste, and the slower change that increases substance, continuously at work. It is easier to disarrange the harmony of two forces working together than to affect the integrity of a single force. Arrest of development in one of a series of connected organs is a modification of the whole series.

Why is it that the growing boy cannot indulge in the same extravagant food with the same impunity as a man? Certainly not because the histological and structural organization of his stomach is unlike the man's; not because his gastric juice is chemically different, but solely because violence is offered to the processes of development. The analogies are manifold; but the principle that underlies them all is, that whatever interferes with the physiological processes of development is fraught with the certainty of ultimate imperfect development, proportioned to the force and continuance of such interference.

It is a physiological precept that an organ is disordered in proportion to its previous activity. The intractable character of intestinal disease and the violence of pulmonic disorder in young children are pertinent illustrations. The same precept applies to the organic disorders that supervene on artificial stimulation. A notable instance is manifest in the severity of acute cerebral disease, and the incurable nature of chronic cerebral disease, the result of an overwrought brain.

Over excitement of a delicate and partially-developed organ is hazardous. The rapidity with which functional sometimes passes into organic mischief during the period of bodily and mental development finds its explanation in the disturbance of that uniformity with which the constructive is in excess of the destructive process, during the formative period. One of the very best observers of the diseases of child-

ren has formulated the statement that, "in infancy and childhood, pain referred to any part signifies, almost without exception, that disease of some sort or other is going on there or near at hand,"* admitting, however, the single exception of the existence of one form of true neuralgic headache, developed in school children, which, in after years, may exist in the same persons as hysterical sick headache. The contrast between the significance of functional mischief in children and in adults is sufficiently striking in estimating the limits of resistance in development and maturity.

Weaknesses result from a too early or excessive tax of functions. The principle applies not only to inharmonious development, but to the inefficiency of organs that are proportionately developed. The effect on the heart from over exercise, as among the University boat-racers, and the mal-nutrition resulting from inappropriateness of food, are well-known examples.

As a matter of clinical experience, the constitutional diseases of childhood are dependent on the imperfect performance of the digestive and assimilative functions, and on an irritable state of the nervous system. The rapid increase of the growth of the brain, and its controlling influence as the source of nervous power, and the dependence of harmonious growth on the integrity and activity of the digestive and assimilative functions, demand, if harmonious development is the end sought, that the conditions suited to these should not be interfered with.

It is not pertinent to this inquiry to institute any formulary by which the health of the child shall be preserved, or what measures should be enforced whereby the nervous system shall be kept in abeyance, and the nutritive processes promoted to their best performance. It is essential, however, to insist that the nervous system is easily rendered irritable in childhood, and the nutrition easily disturbed. It is essential to insist that, popular ignorance to the contrary, the child is not the man, and the conditions needful for the proper development of the child are not the conditions whereby the man is recuperated and preserved, and that the limits of resistance are not the same in the two periods.

* On some Disorders of the Nervous System in Children. Chas. West, M. D.

THE THRONE AND THE COTTAGE.

BY JOHN HOWARD PAYNE.

Published, for the first time, from advance sheets of Mr. Gabriel Harrison's Life of John Howard Payne.

There was once a king on his throne of gold seated;
His courtiers, in smiles, were all standing around;
They heard him with news of fresh victories greeted;
The skies with the joy of his people resound;
And all thought this king was most thoroughly blest,
Till sadly he sigh'd forth his secret unrest:

"How much more delight to my bosom 'twould bring,
To feel myself happy, than know myself king!"

"Ah! what? While such power and such treasure possessing,"
A courtier, astonished, stept forward and cried,
"Could fortune bestow in exchange for the blessing?"
And thus, to the courtier, the king straight replied:
"Health, a cottage, few friends, and a heart all my own,
Were Heav'n in exchange for the cares of a throne!"

"Then, sire, if no longer to empire you cling,
Seek these, and be happy, and let *me* be king!"

The king gave the courtier his throne and descended;
He long'd for delights of retirement to prove,
And now, for the first time, around him there blended
The smiles of contentment, and friendship, and love.
But the courtier soon came to the king in his cot:
"Oh, no!" said the king, "I'll no more change my lot!
Think not that once freed from the diadem's sting,
I'll give up my cottage, and stoop to be king!"

AFTER SCHOOL.

HARRIET A. DENNISON.

It is the beginning of a new term. Those pupils who sat at the desks in your pleasant class-room have passed into other hands, and their places are filled by new comers. Very still they are on this first day in their strange quarters, watchful of all that happens, closely attentive to what you have to say. They are making up their minds whether they shall like you; very likely they think that their late promotion was not a wholly unalloyed blessing. You are not a total stranger to them, however. For two or three years they have seen you daily, and have often listened to the outspoken criticisms of your former pupils. For the last six months their observant eyes have noted, through the convenient glass doors, the workings of your class, and most of them have very decided opinions as to your administrative ability. The girls, doubtless, have already classified you as "sweet," or "horrid," the boys have come to the conclusion that you can't "see more than one at a time," or that you "look after a fellow pretty sharp." But here they are, with opinions open to revision, and waiting for your first move. Seats are definitely assigned, lessons prescribed, and recitations begun. A few days make you acquainted with individual faces and voices; the class settles down to the work of the term. What is this to be? So much history and grammar, a certain quantity of arithmetic and geography—in short, a conscientious following out of all the requirements

of the grade. From nine to twelve, and from one till three o'clock, recitations, study and necessary explanations fill up the busy minutes. Now and then, some irrepressible spirit turns aside the even current of question and answer, and you find occasion to rise to a point of order. You learn in what studies particular pupils excel, and in what they are deficient; who are the law breakers, and who render cheerful obedience; you can make a shrewd guess at many of the home influences and surroundings. But with all this, you do not necessarily know your scholars.

It may be that you believe that familiarity breeds contempt, and so hold your boys and girls at arms length. Your dignity is unapproachable, and you speak to them as from a Mont Blanc of frigid superiority. You propose to do your work faithfully, as far as teaching is concerned; you try to be thorough and painstaking, but you are glad when three o'clock comes, and more glad when, five minutes later, you see your last scholar vanish with a civil "good afternoon." Sympathy between you is undreamed of by either. To you, they are not individuals, but elements of the class—receptacles of the grade. Your mission extends no farther, you think, than to fit them for the coming examination at the end of the half-year. They look upon you as too old, or too stiff, or too indifferent, to take a personal interest in them, and they would no more think of giving you their confidence than of bestowing it upon the policeman who is stationed at the school-gate. Indeed, many of them regard you in much the same light as that worthy public servant. They consider it your business to preserve order, to see that they perform their duties, and to let them alone if they do not disturb the peace.

You may not be too dignified, but too busy to cultivate the acquaintance of the children. Home duties or outside duties may claim your time, and make you eager for the minute when you can lock your desk, and "forget all about school until to-morrow morning."

Or you may dislike teaching, and so dislike those under your charge. You may feel a false shame at being ranked among teachers, and may studiously avoid all unasked allusion to that fact. You may, perhaps, be like that teacher of whom a boy said lately: "She never bows to us when she meets us on the street; I suppose she doesn't want to recognize us; but once in a while, when nobody is looking, she will give a sort of half-smile."

Under any of these suppositions, you are likely to have very little to do with your pupils after school, unless they are detained as a punishment.

It is clear to me that the best results can never be attained unless the instructor is familiar with the individual characters of the children. This knowledge can best be secured by making them our friends. We should take pains to learn about them, their tastes and fancies; about their homes, their brothers and sisters, their simple pleasures, their troubles and sorrows, and temptations. In the regular school hours there is no time for all this; but after three, when the

books are laid aside and school is dismissed, then is the teacher's golden opportunity. The distance which separates her from her scholars can be forgotten, and all meet on a common level of good-fellowship. She need not fear that her authority will be impaired by the interchange of joke and laugh; she ought to find interesting the revelation of character that takes place. For downright available knowledge of habits and dispositions, one-half hour's unrestrained conversation after school is worth more than a week of ordinary school routine.

If, in the unguarded frankness of these talks, you accidentally learn that the father and mother at home are unreasonable, hasty and irritable, can you not more easily make allowances for the child when like traits display themselves? and would you not try all the harder to teach, by example and precept, self-control and repose of character? If your boy is impolite to his class-mates, thoughtlessly interrupting them or rudely contradicting, have you not an excellent text for a quiet talk hereafter, for which he will have reason to thank you by and by? It is incredible that you should not thus gather daily in your hands new clues, which will guide you to the best way of dealing with one or another.

To govern properly those committed to us, to work for them, and with them, so that they shall not only obtain a definite amount of book knowledge, but shall be started on the right path to become good and useful men and women, every possible assistance must be grasped. And there is no more powerful lever whereby to effect this than that of friendship.

Most young teachers begin their work with a very slight idea of its importance. Teaching is taken up for every other reason than that the novice feels it is to be the one occupation to which she is called, which she must choose for her own good and that of others. Too few of us remember that the lessons studied from books are only a small part of those learned through our help. Next to the mother's, our influence is first, and consciously or unconsciously, we exert it for good or ill. If chance words during school hours may prove the seed from which a plentiful and goodly harvest may spring in after life, how much ought we to treasure these after-school chances to implant high ideals and noble aims, to inculcate love and reverence for all that is true and honest and sincere. Preaching will not do it. But in the midst of the fun and laughter and nonsense of our after-school chat, we can convey ideas that will remain when the school life is a thing of the past.

"It is too much trouble." "It takes too much time, and we are not paid for extra hours." "I don't enjoy children's society enough to associate with them any more than is necessary." Ah! to all of you who thoughtlessly answer in this fashion, I assert that it is *not* too much trouble, it does *not* take too much time, it *is* necessary, if you love or hope to vivify the work in which you are engaged; and if you do not love it, you have indeed made a sad mistake in enrolling yourselves in the grand army of teachers.

ABUSE OF RECREATION AND OVERWORK.

There is a tendency, which is both natural and laudable in our young men and women, to seek recreation in social enjoyments; but, unhappily, in most cases, the results are rather calculated than otherwise to superinduce deterioration in the physique of our already not too vigorous American youth. In the cities and large towns there exist, and is rapidly increasing, a class of social organizations for society entertainment that are detrimental to health, and may well cause apprehension in regard to the future of the youth of the land. They may be generally referred to as organizations for private entertainment, amateur theatricals, etc. In themselves they are not always pernicious; but emulation and rivalry frequently cause the expenditure of time and money that cannot be reasonably afforded, and without any adequate return. We might further refer to other and minor mischiefs, inseparable from most of this class of entertainments, but the special purpose of this article is to treat the matter from a sanitary point of view. The waste of time, indeed, is, in this connection, a legitimate subject of comment. It brings a loss of sleep. Following a loss of sleep, resort is not infrequently had to stimulants to carry the exhausted body through the duties of the following day; and even those young men of so-called temperance views, who do not drink intoxicating liquors, will, perhaps, seek to key up their system by twice the usual number of strong cigars. Then there are, with both sexes, the exposure to colds and other illness by negligence of dress, by exposure to sudden changes of temperature, and to other evils of this character. The substance of the matter is, the general health is impaired by these feverish, unnatural, and unprofitable irregularities. With American impulsiveness, we devote all our energies to a passing pleasure, in season and out of season, and, if it possesses intrinsic merit, we deprive ourselves of its enjoyment by a determined, and usually successful, effort to fill ourselves to satiety; then we sicken of it, and retire from the field bearing scars, physically and morally, perhaps, acquired by many abuses of certain amusements which are in themselves harmless. Among their worst tendencies is to destroy taste and desire for rational and healthful pleasure. If we were a people of habits, like the English or the Germans, who have simpler tastes, regulated and disciplined by custom and season, our recreation and enjoyment would be sought in more wholesome ways. There is a tendency among us to ignore the best of our devices for pleasure, and to make an absolute labor of some of the worst. There is nothing with us to prevent the orderly sequence and seasonable fitness of indoor and open air amusements, of which we have a large and entertaining variety, more than exists among other civilized nations, and were we once to adopt more rational modes, we would find them possessing a charm that we cannot now appreciate. Baseball has been our only national sport, and, despite its being

abused by excesses of every character, it has unquestionably been a power in this country for sanitary good. Many young men seeking health, or already possessing it, also seeking congenial companionship and vigorous exercise, have found them, in part, in this game. Cricket has not been adopted here as a field sport. Though as manly and entertaining a game, its play is chiefly confined to Englishmen, and there is an amusing national aversion with both England and America, to the national games of the other. Our best gymnasiums receive only the barest support. There is an apparent reluctance among American youth to deliberately take such instruction as will give proper and healthful tone to their bodies. Regular and orderly exercise seem distasteful to those who attempt anything like a physical training in them. Ball playing, cricket, la crosse, pedestrianism, horsemanship, croquet, and archery, may be enumerated as exercises, which, within proper limits, generally adopted and reasonably practiced by the American people, would revolutionize certain features of the health reports of this country, and give our youth a distinctive character for health, and steady, quiet energy and power. We are a people of brain-workers, and neglect our bodies. If there could be created for us a universal, wholesome, compulsory physical education law—a law that would oftener open the doors of factories, shops, stores, and offices, to half-days of relaxation and exercise in the open air—there would be developed, in a few years, a generation of people with such fibre of mind and body, as has not been seen for centuries in any part of the globe.

It is now generally conceded in England, at least, that the philosophy of human health has not been so seriously outraged, after all, by special training, to which the University boys are subjected. A critical inquiry into the after health of the men who rowed in the Oxford and Cambridge boat races, from 1829 to 1869, has elicited the fact, that in no marked case has anything but decided benefit resulted from such training.

This must, of course, prove very encouraging and satisfactory to all who desire to see cultivated, among our young men, a spirit of manly endurance and wholesome emulation, and who recognize, as well, the fact that vigorous physical development in a scholar is more often than otherwise an index of good mental and moral attributes.

Not long ago, Mr. W. R. Gregg read a paper before the Royal Society in London, calling special attention to the less favorable aspects of modern civilization, and the evils of the high-pressure system of life, evils which are due, perhaps, more than to any other cause, the growing effeminacy of the sexes.

Needless devotion to business, lack of healthful exercise and recreation, are held accountable by him for shortening life and its enjoyment, and no one seems inclined to question the justice of his complaints.

Students, teachers, literary, and business men are all included in this indictment. These, with parents and children, as well, all need to become better informed about the ordinary

agents of health, exercise, diet, sleep, air, bathing, and clothing, under all the ordinary circumstances of daily life. Such knowledge directly tends to promote health, bodily and mental vigor, and ensure, as far as it is possible for human agency to ensure, comfort and happiness.

There is another phase of the question of physical degeneracy of the youth of this country, and the remedies suggested, that we approach the consideration of with some reluctance. There are hundreds and thousands and tens of thousands in the land who, to a greater or less extent, are less responsible for their physical incapacity and weakness than are their employers. Is it wisdom in the large retail stores to exact of their clerks, especially their lady clerks, that they shall stand through all the business hours, whether their duties demand it or not. If it is the exercise of wisdom, is it humanity, and is there no moral accountability for such conduct? We have abolished slavery in this country; but the glorious flag of the free waves proudly over thousands and thousands of clerks and shop girls who toil long hours for remuneration so scanty that there is temptation to do evil (too often, alas! unresisted). They are subjected to an alternative of going without employment, or accepting it, often with demoralizing associations, with demands upon their health that their weak bodies are entirely inadequate to withstand, and with pay upon which they can barely live. A subordinate, yet very conspicuously irrational demand, by some employers of their clerks and salaried assistants, is that they shall dress nicely, even fashionably, and present a neat and tidy appearance upon salaries so meagre that, after paying for their clothes, they have barely a sufficient sum left to pay their board. If sickness, incurred by faithfulness to their employers' interests, keeps them from the store a week, they lose their small stipend, and there may be a physician to pay. If they live at home, there is a heavier tax on brothers, sisters, or parents, and if they board, the bill accumulates. When well, they have little leisure for society of any sort, and if they steal the time from that which nature has assigned them for rest, they do so with peril alike to their health and their situations.

It may be argued that it is not in the power of employers to remedy some of these evils. True, at least, not immediately; but how many of them do anything to make lighter the heavy burdens of their employes? May they not be favored in business hours by moments of rest, by three, or four, or even five evenings a week, by an afternoon, occasionally, by encouragement to believe that they are regarded as entitled to some consideration, apart from their ability to sell goods, to cast accounts, to sew well, or to work industriously at a thousand avocations? When employers ignore all of these facts, and are, sometimes, officers in various reformatory and philanthropic organizations, there is a painful incongruity in their lives. The golden rule, honored in its observance by every religious body on earth, is appallingly violated by thousands of employers. They are by indirection conspirators against the safety and peace of the common-

wealth. When thousands of the poor are being cut off prematurely every year, in consequence of overwork, bad air, and bad pay, the uses of medical advice, the discussions of physical improvement and development, the efforts of health boards, and other progressive influences, are almost in vain. Words are idle when no action is taken. Schemes of reform, however well devised, are nothing without application. The death rate cannot be materially diminished, nor the standard of health essentially raised in this country without the earnest, active co-operation of its best citizens, and those who employ others. Here and there may exist, like an oasis in the desert, a bright little spot where the question is grappled in earnest, where, within a limited area, most cheering results follow; but to make the work effective, it must be universal. We are building our temple of physical health, strength and longevity with one hand, and with the other moving all the power of trade, commerce, and business enterprise to tear it down. Next year, if we choose, we may celebrate the centennial of Mr. Adams' allusion to us as "a nation of shopkeepers." The phrase, together with its companion, about our love for "the almighty dollar," is derisively used against us by the people of every foreign civilized nation. We might well be proud of our industries, our trade, and their successes, did we rightly consider and apply their power for good Would not the Centennial be a good year to establish a bureau of reform in this matter? If there is need in this country for societies to prevent cruelty to animals, there is also an existing demand to solve the problem of the poor, now under consideration. It is one of the broadest questions of the time, involving the moral, physical, and general sanitary condition of the American people. Its correct solution will give us more and happier years. The burdens of life will be lifted, and the succeeding generations will be benefited, beyond calculation, as the result of checking the physical deterioration to which we have been of late subjected.

THE PHILOSOPHY AND METHODS OF PRIMARY INSTRUCTION.

THIRD ARTICLE.

BY JAMES CRUIKSHANK, LL. D.

Most usages of society—barbarous or civilized—are the results of tradition or of a spontaneous growth, based, perhaps, and for the most part, upon some vague and undefined need. Even when, by common consent, and in the furtherance of worthy ends, law and custom unite in certain provisions, the nature of the means, and their proper relation to the end, are not always well understood.

Thus, it is universally conceded that there is, in each human being possessed of normal intelligence, the prophecy of something noble in character, and, if not to become illustrious in achieve-

ment and fame, at least to be helpful, to do his part in the world's work; and the culture of the mind, the care of bodily health, and the proper training of the affections and the will, are accepted as the conditions under which this resultant of character is, in its best expression, possible.

But the relation of the several steps, the reasons for particular courses of study, and the methods of their treatment, are not carefully weighed. Why one study should be pursued at one time, and another at another, what each is to effect, custom, and not reason, has generally determined.

Indeed, the end itself is often vague and shadowy. There is a widespread feeling that, in some way, "education is a good thing," and then it is the custom. Some appear to believe that it is the road to respectability or ease, a way to avoid the hard work of the world, that means soiled hands and the literal sweat of the brow.

Let us first state the problem. What is the end to be attained by intellectual instruction—of what worth is it? If we can determine this, we may then come to understand intelligently what are the means to this end. All analogy in the material world, as to its material uses, at least, seems to say that just as this world of matter, in its right adaptations, is the minister to physical life and perfectibility, so, whatever may be the ideal of intellectual culture in the fullness of the mind's powers of knowing and of thinking, to this the world of knowledge—the sum of things knowable—must, in its due degree and proper relation, be the minister.

We judge, then, that there is, of necessity, from the law of human nature, a philosophical and rational order of studies, according to which, rather than by the hap-hazard methods so commonly pursued, the child must be educated, so that in the fullest degree, and with the greatest economy of time and labor, his faculties may come to full development. If,however,we regard the general practice in our schools, as the measure of the general consciousness, we must conclude that they who would advocate any system, or suppose that there is any law in education, except that of custom, are mere dreamers, and their schemes wild and visionary. Generation after generation has followed this beaten path, recking little whence it started, or whither it led. The commonest lessons in nature have been disregarded —lessons from her great picture-book —waiting ever for the wondering eyes of childhood—whose leaves fear no soiling, and whose colors fade only to be renewed in fresh beauty; lessons that clamor not for expression at the pockets of penurious or indigent parents, as demanded by the caprice of a new teacher, or the torn leaves of the spelling book or geography, which truant fingers had mastered when truant minds had failed; and sciences that have puzzled philosophers are made the staple food for infants.

We may lay it down as an axiom that whatever the mind needs for its full development, science furnishes, just as the condition of bodily growth, health and comfort, are provided for in a right use of the material world. The problem of education, more easily stated in the abstract than solved, is to understand the nature of mind, the

order, degree, and relation of the development of its powers; to know the nature of the different departments of knowledge and their relation, and then adapt the one to the culture of the other.

Since, then, there is a natural law of the growth or development of the faculties of the mind, and this is universally accepted, it will, also, be readily made to appear, considering the nature of the various sciences, so called, that they are but related parts of the sum of things with which the mind may concern itself, and that there is a natural order in which they stand related to each other, at least as the mind apprehends them; and the truest education is that in which they, as the instruments, and the mind, as that which is to be wrought upon, are brought into regular and orderly relation.

It must, then, be matter of some consequence whether the imagination is to be stimulated at the expense of clear perception, tenacious memory, and just judgment, and a well-balanced will; or the memory crammed with dry facts, and the imagination ignored; or the judgment, by undue exercise, perverted, because of inexact or insufficient knowledge of the facts upon which it is to form its conclusions. It is matter of moment, whether the child is to become a paragon in its glib recitation of abstract rules and set tasks, to be forgotten as soon as learned, while the world of nature, touching him at every point, remains as a sealed book. By so much the more as the mind is receiving in childhood that impress which shall for all future time determine its modes of action, should the subjects presented and the order and method of their discussion follow the law of the mind —be fitly apportioned to its needs and its growing capacities, so that it shall grow by what it feeds upon, and the thirst for knowledge be ever increasing, but never satisfied.

In the general outline of studies, we may predicate a rational order from either of two considerations:

First—The nature of the mind, and the order and relation in which its powers normally develop. Then, clearly, those studies that in their order and degree tend to foster such development should be pursued; or,

Second—The nature, relations, and dependence of the different branches of knowledge, from the simplest and most fundamental to the most intricate and complex—these justly classified and arranged, would serve to indicate a proper order.

But as few teachers have intimate notions enough of mental science, and especially in its practical form, involved in the order and modes of action of the child's mind, for practical purposes, and because it is so simple and so easily understood, we may make Dr. Hill's classification the general basis of our order of studies.

It will appear, when properly considered, that between President Hill's arrangment of the "hierarchy of the sciences" under the five great departments of Mathesis, Physics, History, Metaphysics, and Theology, and Mr. Spencer's broader generalization of the concrete, concrete-abstract, and abstract, there is no material conflict.

If, considering the ultimate ele-

ments of knowledge, the order of their dependence were a sure guide to the order of practical studies, then the arrangement of a proper graded course were, perhaps, easy; but a glance at the usual classification, which we give from memory, of Dr. Hill's schedule, used in a lecture some years since, will show that the concrete forms in which a child apprehends organized knowledge combine many of these elements in a single study, and that some, which philosophically are far separated, do, in fact, and from necessity, become related and synchronous. Dr. Hill gives the following classification:

Theology,	Religion, Natural Theology.
Psychology,	Ethics, Aesthetics, Mental Philosophy.
History,	Law, Language, Art, Trades.
Nat. History,	Biology, Chemistry, Natural Philosophy.
Mathemathics,	Algebra, Arithmetic, Geometry.

These, by decomposition and partial recomposition, give rise to special branches of study.

Under the foregoing are included all objects of human thought; a minute analysis giving the ultimate elements of each, will enable us to detect (considering the nature and constitution of any special branch of science) what elements enter into it, and in what way preparation for a study may best be made, as also in what way its possession will help in those that naturally come after it.

To determine this is the teacher's work. He classifies and arranges, analysis and combines, and deduces those simple subjects which the child may consider as facts, study their characteristics and use, both for the enriching of the mind, and the cultivation of its powers.

In primary education we must study nature first and books afterwards; and even the mastery of books is helped by such training of the senses, and the observing faculties, and by the proper expression of the knowledge thus gained; for the *desire for knowledge* thus created, will make the little labor necessary to reading, writing, and the elements of the mathematics—instruments only--a pleasure, and not a task, because of the aid they promise to a coveted end.

The exercise of every normal function of mind is attended with pleasure. We might then say that such exercises as the mind is capable of performing, and finds delight in, are likely to be normal and rational; and, even if not always in philosophical order or method, they must bear some fruit.

A proper course of primary instruction should seek to give pleasure to the mind of the child, and in doing this it cannot fail to fix its attention, sharpen its faculties,and store the mind, and lead it to give proper expression to its ideas in simple language which it understands and uses intelligently.

Too frequently, children have been required to express ideas of which they have no conception, in language they do not rightly understand, until they become so stupid that they can-

not express ideas of which they do become possessed.

The senses, we have said, are the instruments of all knowledge that is objective to the mind, and it may also be said, that without their aid little, if any, can be developed in it. Old John Bunyan has quaintly said:

"The famous town of MANSOUL had FIVE GATES, in at which to come, out at which to go; and these were made, likewise, answerable to the walls, to wit: impregnable; and such as could never be opened, nor forced, but by the will and leave of those within. The names of the gates were these: Ear-gate, Eye-gate, Mouth-gate, Nose-gate, and Feel-gate."

And it may be truly said that our minds and spirits are gainers by the perfection of our bodies, and especially by the proper culture and use of our senses; and although every one may not attain an eye as keen and true as that of the eagle; an ear sensitive to the faintest sound, and trained to catch the spirit of all sweet harmonies; a nostril as far-scenting as that of the wild deer; a tongue as delicate as that of the butterfly; and a touch as acute as that of the spider—yet, in the perfection of each, do we come into possession of the instruments of knowledge, and experience makes us skillful in their use. Thus do all these become the sleepless guardians of the soul; the never-tiring servants of the mind; the gleaners in the broad field of nature and experience, of all pleasant sweets; of all rich, and rare, and strengthening knowledge, fit for the enriching of their kingly master.

Carlisle has very justly said: "The eye sees what it brings the power to see;" and as the cultivated eye, in connection with the trained hand, can make the canvas glow with supernal beauty, or the cold, dull marble become instinct with life; or create, by the inspiration of the brain, which themselves have trained and made skilful, myriads instruments for ornament and for use, so all the senses, in their right exercise, make man a monarch to whom nature pays tribute, and all things which eye hath seen or ear heard, or it had entered into his heart to conceive, lay their riches at his feet.

The progress of scientific inquiry, and the minute analysis by which we arrive at the ultimate elements of things, is in danger of misleading young teachers; for these so-called elementary principles are not the *first* things with which a child concerns himself; they are often the final result, reached only after much research and reasoning. For example, in geometry, scientifically, we proceed "from a point to a line, from a line to a superficies, from a superficies to a solid;" but the child, by the senses, gains a knowledge of the solid first, then of surfaces, lines, and points; and so Herbert Spencer correctly says:

"In each branch of instruction we should proceed from the empirical to the rational. A leading fact in human progress is, that every science is evolved out of its corresponding art. * * Science is organized knowledge; and before knowledge can be organized some of it must first be possessed. Every study, therefore, should have a purely experimental introduction; and only after an ample fund of observations have been accumulated, should reasoning begin."

The teacher should, of course, be possessed of a thorough analytical knowledge of the subject he would unfold to the child, not to teach in the complete and classified form in which it presents itself to his own mind, but in that order in which the child can best receive it.

Our primary school studies and exercises deal too much by far with the abstract, and because of the lack of interest in such studies, and the difficulty of comprehending them rationally and mastering them, the years of early school life are consumed, and the foundations either for advanced culture or for practical life are very narrow and unstable. True, the elementary principles of form, number, and the like, and the conventional modes of representing them, must receive attention, for they are, at the least, important instruments, and enter into the composition of such sciences as geography, natural history, and astronomy. The ability to read and write, and to understand what is read, that is, the meaning and relations of words, is important, not as an end, surely, in any great degree, but as a means to the attainment of that knowledge which others have garnered for us, and for the expression of our own thoughts.

We take but a very meager view of the educational problem when we allow that the culture of a people is measured by the statistics of how many per thousand can read and write.

Many who can do neither are daily enriching their minds with knowledge fresh from the storehouse of nature and the experiences of life, whilst others, who have had, as is said, the advantages of school training, become drones; their minds dormant, their senses dull, knowing but to eat and sleep, and go through a daily round of appointed toil.

To say that our courses of study have been all wrong, and our methods of instruction unphilosophical, would be to impugn the common sense of the world, which, in acting intuitively, acts often philosophically.

It is sometimes urged that because the vast majority of pupils never pass beyond the merest rudiments of learning, in their school course, we therefore need for them, at least, a something in the way of culture which, undefined though it be, it is the fashion to call practical.

But facts are not knowledge, and do not necessarily lead to it, especially if they are put upon the mind in the words merely that embody them. That alone is practical, whether considered for its own immediate uses or as preparatory to broader knowledge, which the mind clearly perceives, and in the acquisition of which there is also the incitement to intelligent thought. In early studies, at least, each additional acquisition should answer some need the mind has been made to feel and to desire; for then, the faculties appealed to, are actively and healthfully occupied with the subject presented.

Indeed, when we rightly consider it, the same kind of preparation is needed for those who are to go on under the care of teachers, and with opportunities for systematic study, as for those, who too early thrown upon their own resources, are left alone, in

the intervals of labor, to that process of self-education, which so rarely effects anything worth the name, after school days are past. Herbert Spencer justly remarks, that "as long as the acquisition of knowledge is rendered habitually repugnant [that is, by wrong methods or unnatural order], so long will there be a prevailing tendency to discontinue it when free from the coercion of parents and masters."

What ever is practical, in primary instruction, at least, is also scientific, and lays the best and surest foundation for intelligent thought and investigation in the future. And any true fundamental culture, that is, in accordance with the proper law of mind, will be found most practical, even if school culture is cut short by the demands of labor.

For the purpose of elementary training can serve but two ends: the attainment of knowledge, and the growth of the mind itself, *i. e.*, for forming the mind and for furnishing it.

A homely way of indicating the matter and method of primary instruction in those cases in which they must be, to a great degree, empirical, would be to say: Watch the ways of the child at his sports, the play of the fancy, the first suggestions of the action of the imagination, the material forms that delight him and stimulate the constructive faculty, the æsthetic asserting its claim in all things that delight the eye or charm the ear, the kindling enthusiasm that compels the mind and prepares the memory, like the sensitized plate of the daguerrean, to receive and retain the images of things thrown upon it—language, not a thing of books, spelled out painfully, and little understood; not meaningless sound, and still more meaningless words; but, because of its necessity, terse, forcible, and permanently retained. It is not meant, of course, that there shall be no labor, no tasks, even; but why should not—with such little restraint as may be necessary to put the mind in the way of receiving exercise—why should not its needs and demands for gratification be as imperative and as well provided for as those of the body?

The same dear mother nature, if we but let her work her tender will, hath joys in store for the one as for the other.

There will not be much disagreement among thinking men and women as to the subjects of study, the limited range of exercises which will occupy the earliest years. The methods of presenting these subjects, or, rather, the supervision and direction of the pupil's work in them, are all-important, and the qualifications the teacher must have to do this work successfully. These will receive some attention in a subsequent article.

SOME DEFECTS IN THE WEST POINT PROCESS OF EDUCATION.

NO. I.

Our national military and naval schools, at West Point and Annapolis, have ever been objects of pride to every patriotic citizen. The American does not question for a moment their necessity, and he trusts his son with blind and implicit confidence to whatever may await him in these in-

stitutions. They are national, and by presumption the best. Their systems of moral, physical, and mental training may not experience any material change for two or three decades, and if questions are timidly asked, to discover the reasons therefor, the inquirer will be calmly informed that a military education is necessarily imparted in a manner quite different from that in the civil schools, and that the student has to acquire self-reliance, confidence, energy, perseverance and endurance, by a severity of discipline and certain roughness of association, that are not demanded in the ordinary schools. In truth, a thoroughly orthodox military man who has been steeped in West Point, would scarcely deign to give so detailed a reply. It is the popular habit never to question or cavil at the military schools, unless we hear that one of our children has been half killed by "hazing," or some other of the peculiar hardening processes of those institutions. If their bodies are hurt, they cry out, and there may be a wail in the newspapers about it, and few people ever go behind this to see if there are other evils. The routine system that has prevailed in these schools for so many years, has not progressed with the best sentiment of the country, and now what might once have been regarded as defects in it, have become monstrous abuses. Some of these are of the nature of barnacles, having fastened themselves upon it, almost insidiously, and clung to it until they are a part of it; while others are the bold innovations that are handmaids to modern modes of corruption.

West Point, in its earlier days, was a school from whence graduated the thorough gentleman and scholar. Not all, of course, were equally gentlemanly and scholarly, but the most was made of the material at hand. There was not then a toleration of malice and favoritism; there were not then implanted in the young mind false notions of honor, and fictitious theories of true manhood. In those days young men were taught to be gentlemen absolutely; in these days, whatever they may be taught, many of them leave the institution with only a conventional and superficial idea of the meaning of the word. It is impossible that it should be otherwise. They have acquired false and almost ineradicable impressions respecting those elements which constitute true manhood. Practically, it amounts to this: Their private lives and their inner characters may be whatever their passions and appetites may prompt, but they must sport their military airs in public, come out strong on such points as they gave most attention to in their curriculum, and give a veneering as thick as possible, to show the merely superficial *social* education they have received. If parents knew what their sons would encounter at West Point, there are few who would care to place them in that school. There are tolerated in that institution "social customs," the acceptance and adoption of which, by its peculiar "discipline," become so imperative that the alternative in not indorsing them is tantamount to social ostracism. These "social customs" embrace quite a range of small vices, which most parents naturally shrink

from placing their sons in contact with. The civil schools of the country do not wink at drinking and private quarrels between students, who finally adjust their troubles by a secret meeting, where they maul each other with their fists, as savages from the wilds of Africa might do. They do not have such "discipline" that students get to fighting about how it shall be maintained, and then remain blind to the fact that the fight is going on. The man who has the most money to spend, who is loudest at the carouse, and first at gaming, and the bully at fisticuffs, is not the accredited model for his associates to imitate. A man may graduate from a civil school in this country who never drinks, gambles, uses profane language, or learns the art of pugilism; and he may look back upon his college years as giving him the most enjoyable associations of his life; but these things are not all true of the graduate from West Point. The "good" cadet is a person not to be tolerated. If he expects to be undisturbed in the possession of his strange inheritance, and still to retain pleasant social relations, he will be wofully disappointed. He will, at least, have to quarrel with and "whip" somebody before he can be regarded as a gentleman of any account. We have endeavored to show that these evils are a part of the education by tolerance at West Point. With a system, the begining and end of which is discipline, there is an utter absence of this element in certain details where it is of vital importance to the future welfare of the student. By indirection, and by tacit recognition and endorsement, the school, in the cadet's eyes, is a school that teaches a man how he best shall enjoy life with a military training. His instructors are men bred to military service, who have themselves been "ground through the mill," and have the true ring of West Point in all their relations to subordinates and the outer world. If there is favoritism shown, or if envy and persecution crop out among the young men, their instructors reason that they, too, had their trials in school, they survived them, and it is not for them to make innovations, and disturb the "discipline." How young men may be properly fitted to control their tempers, and command other men, who are deliberately permitted to foster resentments and engage in brutal fights, is a problem worthy of some investigation. During the war we heard occasionally of some very sad rebuffs and defeats largely attributable to the present intoxication, or the recent debauch, of some general, who had graduated from the "discipline" we have been considering. We can see the fruits of the discipline in various parts of our country. There are scores of distinguished names, among both the living and the dead, of those who have graduated at West Point. It may be said of them, that they have won their fame in spite of the defective system prevailing there to-day. Not a few, even, of these (as some, perhaps, would be willing to admit) bear moral wounds which they received at that institution

What is needed at West Point is a higher estimate of manhood. The "manly art of self-defence" is one thing, but a quarrel is quite another. If boxing, rowing, and athletic exer-

cises of all kinds develop the muscles of young men, there is not necessarily inspired among them a love for cruelty to each other, a passion for gambling or strong drink, or the harboring of resentments. None of these evils can, in any sense, be regarded as essential to discipline; on the contrary, they subvert it entirely. Their toleration lets in a flood of petty plagues, the general effect of which is to demoralize the cadet, and give him a narrow and altogether erroneous view of the aims and purposes of life. He goes from the institution, and both by his precept and example, if he is entirely loyal to his training, he gives the world an admirable impression of West Point as a merely military school, and a most shocking one of it as a school of general morality.

The education at West Point needs to be more than military. The common soldier is supplied with his rations and clothing, and has no care for himself. He goes whither he is sent; and when his race is run, he lays down life's burdens with a belief that he has done all that was required of him. The West Point cadet is largely impressed with a similar view of life, but it is given a more attractive appearance by presenting to him stimulants to such endeavor that his manhood will find wider scope for the exercise of his tastes. He acquires certain graces and accomplishments rightly called "polish," and a good education, but underlying all is a profound belief in the perfection of the system, a degraded and entirely false impression of true manliness and a blunted sense of moral accountability. For these things, West Point is responsible. Some have graduated who are true men superficially and at the core, in spite of their training, but more have been warped and distorted in various unfortunate directions. As conducted, the school discipline, ostensibly thorough, stops short where it ought to be most rigidly enforced. It need not be, necessarily, a cold-water school, to be vigilant in administering such penalties for intoxication, as would not only prevent its recurrence, but educate the violator to a just appreciation of the revolting habit. Quarrels of all kinds could be zealously watched for, and heavy penalties prescribed for any overt acts by either party. Personal collisions could be treated with prompt expulsion. Gambling, however petty, should not be tolerated. It is entirely apparent that it is in the power of West Point, more than any other school in the land, to completely abate the evils under consideration, and to exert an entirely unsectarian, moral and reformatory influence in their stead. Our young men are sent there to have their manhood developed, not crushed. They go to acquire a military education, and with it their parents and guardians expect them to become real men—men whose good impulses have been steadily encouraged and whose evil thoughts and erroneous notions have been as resolutely frowned down. West Point instructors rising above the rusty routine that began with the long nap of its neighbor, Rip Van Winkle, should adopt new methods and make this the real and not merely the traditional pride of our country. Let the next generation of graduates from West Point be

recognised as thorough gentlemen, manly, brave, modest, scholarly, finely developed in mind and body. They would remember that with varying tastes and from various social circles—both rich and poor, they met on a common plane at West Point, received uniform and impartial consideration, were compelled to be kind and courteous to each other, and graduated with exalted views of life, prepared to take up its cares and duties, strong and noble types of American citizens.

The evils we have attempted to characterize are not imaginary, although not visible to every casual observer. They rest like a blight upon a system of education that might be made, by its example, a beacon light for the best training of all the young men in the civilized world. As the school now exists, thousands of thoughtful parents would not, under any consideration, send their sons there. As it might become, it would be the school of the country to develop our highest hopes for a certain type of mental, moral, and physical training in America. The present system is narrow, bigoted, and military in an old-fashioned, restricted sense that carries the reader back to a period when Albany was a frontier town. Its good features are fortunate accidents, and its bad ones may exist always, because there is never any change. There should be a general waking up at West Point, and a revolution that would weed out not only the evils that now prevail, but summarily remove every official whose views are fully consonant with the present state of things. The hospital there was not erected to receive cadets wounded in their private quarrels; and gentlemen do not send their sons there to engage in secret carousals or other "fast" practices, nor to be "hazed." Doubtless these methods of instruction "harden" young men, but there are parents who cling to the notion that their sons will "harden" all that is necessary without special training, and the best public sentiment abhors the idea that a national school should deliberately permit young men to adopt habits which will not only weaken or ruin them personally, but have a pernicious exemplary effect upon the community at large. Every year weakens, while it pretends to build up, the military arm of the government, and, without additional cost, every year might see it growing stronger and more vigorous, the pride of Americans everywhere the stars and stripes float. Let us have such a condition of things that it may be said of the West Point cadet, "He is a gentleman and a scholar," in the fullest acceptation of the phrase. This would bar out pugilistic duelling, intemperate drinking, and every excess and dissipation. He would then be worthy of more than the coquettish acquaintance now bestowed upon him by the lady visitors of summer, because of his pretty uniform and a few other superficial attractions.

APHORISMS OF PESTALOZZI.

(Continued.)

PART II.

66. From *observation and memory* there is but one step to *reflection.*

67. The powerful stimulus of inquisitiveness prompts to exertions, which, if encouraged by others, will lead to a habit of thought.

68. I am certainly of opinion that children should *not* be indulged in a habit of asking *idle* questions. Many of them betray nothing more than childish curiosity; but it would be astonishing if it were *otherwise*, and the *more judicious* should be the *answers* which they receive.

69. You are acquainted with my opinion that, as soon as the infant has reached a certain age, every object that surrounds him might be made instrumental to the excitement of thought.

70. You are aware of the principles which I have laid down, and the exercises which I have pointed out to mothers.

71. Education is not the work of a certain course of exercises, resumed at stated times, but of a *continual* and *benevolent superintendence.*

72. Education should not only decide *what is to be made* of a child, but rather inquire *what is a child qualified for?*

73. If, according to correct principles, all the faculties of man are to be developed, and all his energies called into play, the early attention of mothers must be directed to the physical education of children.

74. Gymnastics.—The greatest advantage resulting from a practice of these exercises is the *natural progress* which is observed in their arrangement, beginning with those, which, though easy in themselves, yet lead to others which are more complicated and difficult.

75. The exercises not only vary *in proportion* to *the strength* of individuals, but exercises may be, and have been devised for those decidedly suffering.

76. The *early* and *continued* practice of exercises on the gymnastic system, essentially contributes to render children *cheerful* and *healthy*—to promote among them a spirit of union and brotherly love, habits of industry, openness and frankness of character, personal courage, and manly conduct in suffering pain.

77. In physical education, particular exercises ought to be devised for the practice of all the senses.

78. It cannot be difficult for a mother to introduce a number of them into the amusements of her children, calculated to develop and perfectionate the eye and the ear.

79. It is desirable that everything of that kind should be treated *as an amusement*, rather than anything else.

80. The *greatest liberty* must prevail, and the whole must be done with a *certain cheerfulness*, without which, all these exercises would become dull, pedantic and ridiculous.

81. It will be well done to connect these exercises very early, with others tending to form *the taste.*

82. It seems not to be sufficiently understood that good taste and good feelings are kindred to, and reciprocally confirm each other.

83. Music.—There is a marked and most beneficial influence of *music* on the *feelings*, which I have always observed to be most efficient in preparing or attuning the mind for the best of impressions.

84. It is well known that there was not a more eloquent and warm advocate of the moral virtues of music than the venerable Luther.

85. Those schools or families in which music has retained the *cheerful* and *chaste character* which it is so important that it should preserve, have invariably displayed scenes of moral feeling, and, consequently, of happiness.

86. Drawing.–Among the first manifestations of the faculties of a child, is a desire and an attempt of imitation.

87. It is well done to furnish children with playthings, which will facilitate their first essays, and, occasionally, to assist them.

88. It is necessary to analyze for them the parts and elements of which a whole consists.

89. Children should not be confined to copying from *another drawing*, but copy from *nature.*

90. Modelling.—Next to the exercises of drawing come those of *modelling*, in whatever materials may be most conveniently employed. This is frequently productive of even more amusement.

91. Geometry.—The preparatory exercise present an analysis of the various combinations under which the *elements of form* are brought together and of which every figure or diagram consists.

92. Geography.—In geography the drawing of *outline maps* is an exercise which ought not to be neglected. It gives the most accurate idea of the proportional extent, and general position of different countries; conveys a more distinct notion than any discription, and leaves the most permanent impressions on the memory.

93. Yet, where, it may be asked, granting that it might be desirable to see some of the knowledge which these exercises are intended to convey, diffused among all classes of society—where, and by what means, can they be expected to become general among any other than the higher classes?

94. To this I would answer, it is vain to assign limits to the *improvements* of ingenuity, and it is still more so to circumscribe the *exertions of benevolence.*

95. The most enlightened philanthropists, two thousand years ago, could not have foreseen the change that has taken place in the intellectual world.

96. They could not have anticipated those facilities, by which not only the research of a few is encouraged, but by which the practical results of that research, are, with wonderful rapidity, communicated to thousands, in the remotest countries of the globe.

97. But it is *not* to the *diffusion of knowledge* alone, that I look for the welfare of *this*, or of *any* generation.

98. No! Unless we succeed in giving a new impulse, and in *raising* the *tone* of domestic education; unless an atmosphere of sympathy, elevated by moral and religious feeling, be diffused there; unless maternal love be rendered more instrumental in early education than any other agent; *unless mothers will consent to follow the call of their own better feelings, more readily than those of pleasure or thoughtless habit; unless they will consent to be mothers, and to act as mothers;* unless such be the character of education, all our hopes and exertions can end only in disappointment.

99. It is *their* duty to do what *school instruction* has *not the means* of accomplishing; to give to every *individual child* that degree of attention, which, in a school, is absorbed in the management *of the whole*, to let their hearts speak, in cases where the heart is the best judge; to gain by *affection*, what *authority* could *never have commanded.*

100. I am aware that many mothers would declare themselves, or would be looked upon by others, as incompetent to attempt any such thing. Now this is a fact which, as far as *experience* goes, I am bound to *deny.*

101. This poor and ignorant, this young and inexperienced mother, is not destitute of means to assist in the intellectual developmeht of her child.

102. She is able to give him possession of a variety *of names*, simply by bringing the objects themselves before him, pronouncing the names, and making the child repeat them.

103. She may bring such objects before him, in a sort of natural order, the *different parts*, for instance, of *a fruit.*

104. She may describe these objects to the child, with regard to *form, size, color, softness or hardness of the outside, sound when* touched, and so on.

105. From the knowledge of *names*, she has led the infant to a knowledge of *qualities* and *properties.*

106. She may go on to *compare* different objects with regard to these qualities, and the *greater* or *smaller degree* in which they belong to the objects.

107. The former exercises were adapted to cultivate the *memory;* these are calculated to form the *observation* and *judgment.*

108. She is able to tell her child the *reasons* of things and the *causes of facts;* to inform it of the *origin* and *duration* and *consequences* of a variety of objects.

109. The occurrences of *every day* and *every hour* will furnish materials for this sort of instruction, which teaches the child to inquire after the causes, and accustoms it to think of the consequences of things.

110. This class of exercises, varied in an almost endless series, will give frequent occasion for the simplest illustration of truths belonging to moral and religious instruction.

111. It will make the child reflect on the *consequences of actions.* and recog nize, in the objects before him, the effects of the infinite wisdom of *that Being*, whom the piety of the mother, if genuine, must long before have led him *to revere* and *to love*, "with all his heart, and with all his soul, and with all his strength, and with all his mind."

112. Nothing is more common than the complaint, "I can do nothing with

children." But those words should *never come from a mother.*

113. A mother is called upon to give her attention to this subject; it *is* her duty—the voice of conscience will tell her that it is; and the *consciousness of a duty does never exist without the qualification* to fulfil it.

114. Nor has a duty ever been undertaken, with the spirit of courage, of confidence, of love, that has not been *ultimately crowned with success.*

115. A mother desirous to take an active part in the education of her children, must direct her attention to the necessity of considering, not only *what sort of knowledge*, but in *what manner* that knowledge should be communicated to the infant mind.

116. A mother should perfectly distinguish between the *mere action* of the *memory*, and that of the other faculties of the mind.

117. The exercise of the memory, *exclusive* of a well-regulated exercise of the understanding, applies especially to the manner in which the *dead languages* have long been taught, a system of abstruse and unintelligible rules, and of compulsive discipline.

118. An exclusive cultivation of the memory must be still more misapplied at the tender age, when the intellect is only just dawning, when the faculty of discerning is yet unformed, and unable to consign to memory notions of separate objects, in distinction from each other.

119. To guard against an error of this kind, the first rule is to teach always by *things*, rather than by *words.*

120. Let there be *as few objects as possible* named to the infant, unless you are prepared to show *the objects themselves.*

121. But, to the formation of *an idea*, more is requisite than bringing the object before the senses.

122. Its *qualities* must be *explained*, its *origin accounted for*, its *parts described*, their relation to the *whole ascertained;* its *use*, its *effects* or *consequences* must be *stated.*

123. Of objects which cannot be brought before the child, in reality, *pictures* should be introduced.

124. When the knowledge of an *abstract idea*, which will not admit of any representation of this kind, is to be communicated, an *equivalent* of that representation should be given by an exemplification, through the medium of a fact, laid before the child.

125. This is the original intention and use of *Moral Tales.*

126. The second rule that I would give, is this: Let the child *not only* be *acted upon*, but let him be *an agent.*

127. It is *well* to make a child *read*, and *write* and *learn* and *repeat*; but it is *still better* to make him think.

128. To engender that habit of reflection which guards against unthinking conduct under any circumstances, which is always active to examine what is brought before the mind, which leads an individual to the modest acknowledgment *that he knows but little*, and to the honest consciousness *that he knows that little well*, nothing is so effective as an early development in the infant mind of regular, self-active thought.

129. I, therefore, call upon the mother to *begin* her task, in spite of any objections.

130. It will be enough if she is persuaded *to begin;* she will *continue* of herself.

131. Without troubling herself whether there are any *innate ideas*, she will be contented with developing the *innate faculties* of the mind.

132. There is not anything within the reach of a child's attention, whether it belong to nature or to the employments or arts of life, that might not be made the object of a lesson in useful knowledge.

A GLANCE AT OLD BROOKLYN.

ITS SCHOOLS AND TEACHERS.

L. W. H.

Old Brooklyn and old Damascus—what a contrast! As Damascus is one of the most ancient of cities that still remain vigorous, though it antedates by many centuries all modern civilizations, so Brooklyn, third, as it is now, of the Union, in population, yet it is one of the newest or youngest cities in comparison with any in the Old World—a mere child of yesterday—for its charter was granted only in 1834; its population was then some 23,000, and its Common Council elected George Hall as the Mayor. Good Mayor Hall! So fresh and welcome in our memories; dying only a few years since, at a very ripe old age, which had all the haleness and vigor of early manhood in it, and dying with more of solid honor and regard from all ranks of the people, than if he had received a thousand such civic crowns as Old Rome used to bestow! No oak-leaves could rival his laurels of character and public services. He periled worse deaths than Curtius.

Yesterday, as it were, Mayor Hall told me that, as a boy and youth, he knew every man, woman and child in Brooklyn and the adjacent towns; in fact, he might almost say, he knew every man's horse and dog.

Dutch was then the usual language, still among a large part of the people, not only descendants of Dutch ancestors, but, singular as it at first strikes us, among their negroes who had been their slaves, and were their hired help in field and house. The Dutch formula of infant baptism, he quoted to me as readily as if the Dutch were his mother tongue, as truly as the English, and it seemed equally so, he said, for he learned it at so early an age, that he did not remember how or when, unless from hearing it so much while a child.

One man's life-time outmeasures the municipal life-time of Brooklyn. Placed as parallels, his ran back far beyond the other. Measured back from 1875 to 1850, what changes—how vast in extent!—how astonishing in physical achievement, and how numerous, Brooklyn has accomplished or undergone in the quarter century!

THE EARLIER PRIVATE SCHOOLS.

While the development of our commerce, our mechanic arts, and popu-

lous industries, in every field, has been so rapid, education has made no unworthy progress in comparison.

Brooklyn was incorporated as a village in 1816, about which time its first free or district school was established—sixty years ago—a fact which some of the old residents can readily recall as an occurance of their childhood.

Forty years since its charter was granted! Hundreds of us remember it well. In 1800, its population was only 3,298. Compare that with 1870 and its 396,300 inhabitants.

Why has the population not only so multiplied, but remained so signally law-abiding, orderly, industrious and religious?

With all other causes, it owes much of its present status and character to its educational advantages.

The philosophy of such results is not obscure. Schools are at once effect and cause;—effect so far as their number, efficiency and rank is due to the community, by whose action, or to the individuals by whose energy and means good schools are founded and well sustained, amply warranting the sentiment, that any people may be measured and weighed in morals and in mind by its schools;—cause, and a most transforming and omnipresent cause of the best results, inasmuch as the best of schools are perpetually educating and supplying the best of citizens, enhancing incessantly, like vital air, the active virtues, the enlightenment, the enterprise, the household graces of the whole people, as well as serving thereby to attract new residents of like spirit and tastes and culture, who wish their families to live in such an atmosphere of society.

The scope of these recollections is narrowed to the earlier private schools, only, as started and operating for some thirty years, say from 1825 to 1855, while the limits of such an article, as well as the intrinsic interest of such a topic, must be a bar to any very full treatment of it, as the brief mention of names may suffice to revive a thousand vivid memories, some sunny, some tearful, in connection with these now disbanded schools. They did their work, and served their generation. Their influence will die only when the principles and habits they implanted shall die away. In this sense, may they be as immortal as the city whose earlier years, and now adult generation, they aided to mature, develop, and ripen into stalwart and graceful manhood.

BOYS' SCHOOLS.

The chief schools for boys and young men from 1825 to 1855, were those kept, for longer or shorter periods, by Putnam & Ames (afterwards by S. Putnam), Benjamin W. Dwight, Taylor & Comings, Charles S. Stone, Marsh & Chisholm, Charles A. Silliman, W. H. Bigelow, and A. T. Baldwin. The only one of all these still so employed here is Mr. Baldwin. The only one that ever made it pay him well, and who accumulated considerable property, directly in the line of teaching, was Mr. Dwight.

YOUNG LADIES' SCHOOLS.

Of these, the principal, during the said interval, were the Brooklyn Female Academy (since merged in the Packer Collegiate Institute), Prof. Alonzo Gray's, Prof. A. Greenleaf's,

and, still earlier, Mr. Cleveland's and Mr. Baisley's.

Others there were, no doubt, but none that I knew, or none that were specially prominent for some years. The list above is, of course, not complete, and need not be, for our present purposes.

PERSONAL AND CHARACTERISTIC.

Putnam & Ames commenced in 1831; taught boys only, and continued in partnership some years. The school edifice they occupied was that now called the Lyceum, on Washington street, nearly opposite the Brooklyn Institute. It was the most important and successful school of the day.

Theodore Ames was graduated at a New England college. He studied law while teaching; was admitted to the bar, left school, and afterward became judge.

In 1839, Samuel Putnam removed his school to his new house on Henry street, corner of Love lane. The house was said to be built very far from the centre of the village, and in the fields. He would have built in Pierrepont street, but his friends objected to it, on account of the distance, that parents would not send their sons so far! He taught school in the upper room—the whole floor of his house, some twenty-five years, with an average number of fifty scholars, his limit of accommodations, except on one or two occasions, for special reasons, when he received fifty-five. His methods of teaching were original and thoroughly effective.

In penmanship, in English grammar, in reading and elocution, in arithmetic, in spelling, his school excelled. He was author or compiler of a series of readers, published by W. Wood; of a set of writing-books, published by Lambert & Lane, and of an abridgment of Murray's Grammar, for beginners.

In classics, algebra and geometry, he availed himself of the services of college graduates, who were pursuing theological studies in the Union Seminary of New York city.

He was a gentleman of the old school; he was strict, but very kind-hearted; he was universally respected, and—what is much rarer with strict teachers—was, at the same time, as cordially beloved by his scholars.

No teacher ever cultivated the power of conscience with more care. "Is it right?" was the earnest, searching question, which he put with all kindliness, and urged with impartial fidelity.

A boy came rushing, almost flying, into the school-room, one day, while Mr. P. and I were conversing at recess, and, flushed with excitement, and burning with some petty wrong or grievance done him in the play-ground by a school-mate, poured out volubly his side of the case; Mr. P. heard him, asked him questions, held up the boy's own conduct in the case in different particulars, pressed the question, firmly but affectionately, "Was this right?" "Was that right?" The young plaintiff was full of the other boy's fault, and wrong-doing. Mr. Putnam drew him gradually to look at his own errors and misconduct, till the youngster went out in a few minutes, wholly gained over to the spirit of forbearance, forgiveness, and good-will, particularly as he knew his teacher would probe

the conscience of the defendant with equal fidelity. It was with a holy awe, rising well nigh to reverence, that the groups of vivid, energetic enthusiasts, hung around the old veteran and on his very lips. Conscience and the Golden Rule thus constantly gaining strength in their minds and souls, it is no wonder that he trained up boys into excellent men. Nor is it any wonder that with such thorough drill in correct principles and fundamental rules, Richard Grant White, one of his old pupils, should have put it on record, that, if any boy did not learn much there, it proved "more than an average amount of original sin" in the scholar, or some such expression.

In 1854-'5, when the Polytechnic went into operation, it swept off the most and the best of his scholars, to the number of over thirty, leaving him with less than twenty, too few for his support, and, worse yet, too untrained to serve as his "moulds" or models, by which to train and control his newer pupils. But his old friends, on learning the fact, united and sent in pupils to his old number; but the old guard was gone, and the average age and attainments of the new pupils was much lower than before, and necessarily so continued till his death, when his school passed into other hands, then removed, and soon melted away.

But there are hundreds of our best citizens of the present day in the city who feel the deepest obligations to the labors of their venerable friend.

Taylor & Comings kept their school at the corner of Montague and Hicks, over Dickinson's drug store.

Mathematics and classics were their *forte*, in which they carried their pupils farther than any other school here, unless Dwight's. It was absorbed in the Polytechnic.

Prof. Stone's specialty was the sciences, particularly chemistry and natural philosophy, for which he made large outlays in buying apparatus, and personal efforts in collecting mineralogical and geological specimens, by excursions, purchase, and exchange. His cabinets were probably the best in the city. His school was in the marble block, corner of Court street and Joralemon, till it was all absorbed in the Polytechnic, in which he was elected Professor of Physics. He is now in a similar Professorship at the Cooper Institute, New York, and with finer cabinets and ampler resources for his favorite pursuits.

Mr. Bigelow's school was in Pierrepont street, adjoining the Baptist Church, for some twelve or fifteen years, and was always attended by a good class of boys, to the number of some thirty or forty. He sold out the premises to Holy Trinity Church, for a parochial school, and sold to advantage.

Charles A. Silliman bought of Rev. Mr. Tuttle his College Grammar School, in 1849-50, and conducted it with marked ability some theee years; in classics, mathematics and English, had an average of some fifty scholars, and disposed of it to L. W. Hart, in order to embark in the commercial pursuits of his father. His location was on the corner of Clinton and Atlantic, over the premises of Heydenrich Bros., druggists.

A. T. Baldwin's school was kept some ten years, in Tompkins Place, then transferred to the new building

on Court street, corner of Harrison, where it remains. He is a man of much enthusiasm, energy and fidelity. His school is not characterized by any prominent specialty, but embraces quite a range of studies, and has educated a large number of scholars, to the marked benefit of South Brooklyn.

Of the young ladies' schools, the Brooklyn Female Academy is too well known to need a sketch here. Its buildings were swept away by fire; it met immediately in temporary quarters and fulfilled its duties. A new organization was effected, on the liberal bequest of Mr. Packer, and the generous gift of Mrs. Packer, in addition, the history and benefits of which are too important as well as too familiar to permit of so inadequate a notice as could be herein presented.

Prof. Gray's Seminary was founded too near 1850 to come fully within our view, and its chief prosperity was subsequent to that date.

Mr. Cleveland a liberally-educated man, had a school of high rank on Clinton street for some five years; but prior to my recollection, Mr. C. and Mr. Putnam, were both New Englanders, and on terms of most intimate and unbroken friendship.

Mr. Baisley's school enterprise was planned and was foiled before 1852. It occupied the Mansion House, which, the centre building, was erected expressly for a young ladies' seminary on a grand scale, with the highest facilities, but failed for the want of adequate support. To write its history might be a matter of curious or painful research, but does not fall within my recollections. The boldness and expense of the enterprise deserved an eminent success, whatever were the causes of its disastrous failure—if my information in regard to it is correct, which I have taken no steps to verify. [Mrs. Ledyard Bruce and sister prepared many for that school.]

Prof. Greenleaf's Institute for Young Ladies, on Pierrepont street, at the corner of Clinton, may, in some sense, have come from the preceding attempt; in fact, I know that Prof. G. once related to me some such phase of his experience, in connection with a heavy loss of property, but the particulars have now faded out of mind. He was an eccentric and very energetic man, a great enthusiast in every good cause, with finer powers and more attainments than are needed, if combined with certain other traits, to constitute a public character of leading influence. As a teacher, he was full of illustrations, forcible, quaint, and striking. His many pupils will do him the honor to declare him a very painstaking, frank, and entertaining instructor, and a fervent Christian.

His school was usually not half as large as Prof. Gray's, nor the age as high on an average, nor the course of study as extensive. Prof. Gray was the professor all through, as his philosophy demonstrates, and the scholarship of his graduates attests.

Dr. Stiles' History of Brooklyn, in its three volumes, supplies a host of interesting and valuable sketches, picturing Brooklyn in these earlier days. To this work we warmly commend the reader.

A sketch of Mr. Dwight, as teacher, and of his school, may be given hereafter, rather than to lengthen this train of personal recollections at present.

If our object—to make others turn their own books of remembrance thoughtfully over—has been gained; if, as they muse, the fire burns, the past lives again, the forms, the voices, the scenes of youth recur, and bring delightful associations, it is sufficient pleasure that we have touched the chords where such sweet music was hidden, like a summer breeze, straying among the strings of an Æolian harp.

THE JOURNAL OF EDUCATION,

185 MONTAGUE STREET,

(Opposite the Academy of Design,)

BROOKLYN.

JOHN Y. CULYER, Editor.

Subscription to the JOURNAL, Two Dollars and a half a year, payable in advance.

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ART EDUCATION.

The elaborate report which was made to the Austrian Government, by Dr. Langl, on Drawing and Art, as represented at the Vienna Exposition in 1873, has just been brought out in English form, by L. Prang & Co., art and educational publishers, Boston. The translation, full and exact, is by S. R. Koehler; an American preface of considerable length is furnished by C. B. Stetson; the whole makes a volume of some two hundred pages. The report describes and criticises the instruction which is given in drawing and art, in all parts of the world. Never before was there so good an opportunity, as at Vienna, to compare the art education of different countries, its scope and methods, and to contrast the industrial results. Never before was there a country so anxious as Austria, the greatest educational reformer in Europe to-day, to learn the utmost about art-industrial education. The American preface, after a brief summary of what is doing in Europe, for the art-industrial education of the people, shows, by the aid of telling statistics, that the time has quite come when we should arouse ourselves to the same work—when we should not only imitate, but, if possible, outstrip our European rivals.

The publication of this report is timely, and will prove of great service: 1. By furnishing the latest and fullest account of what is doing in all parts of the world to promote art-industrial education. This is knowledge which will be appreciated by that rapidly-increasing number of American educators, who realize that the time has come for earnest work in behalf of both general and special instruction in drawing and art, but do not know just what should be done, nor just how it should be done. They desire, if possible, to avoid the many mistakes which have been made by others. 2. The report will prove of service, by helping to enlarge the narrow views of the scope and importance of instruction in drawing and art, now entertained by many. There is, indeed, danger, that through the adoption of timid half measures, we may fail to secure from art-industrial

education the wonderful results which have been secured by others, and which justly entitle the pencil to be called "the most efficient ally of the needle-gun" in maintaining the power and influence of a nation. Louis J. Hinton, who was one of the Massachusetts Commissioners to the Vienna Exposition, and whose business it was to examine "Museums of Art and Industry," says, in his report, speaking of the present American movement in behalf of art-industrial education: "It must be remembered, that if we want quick and valuable results, our outlay and exertions must be in proportion to our desires To give a lukewarm support to the movement, and then, ten years hence, grumble because we have not effected as great changes as other countries in a like period of time have done, would be but a sorry way to bring about a beneficial result, though it is what is likely to happen unless a very strong interest is aroused in the public mind in behalf of the idea." As already stated, Prof. Langl's report must tend to enlarge and to enlighten public opinion with reference to the scope and importance of art education. Indeed, upon reading this report, one cannot help feeling that those who cry down popular art education, who inveigh against drawing as a mere accomplishment, or, at best, as a thing of limited use, and so should not be admitted into the public schools, are totally ignorant of what they discuss with such assurance.

Want of space does not permit us to do anything more than to refer to the general features of the report. Especially are we impressed with what has already been done in Europe for the advancement of art education. To quote from Mr. Stetson's preface: "While America, as yet, has done almost nothing for the direct education of labor, how munificent the expenditures made for this purpose by European governments! how broad their view, and how thoughtful the adaptation of means to secure the end desired! They rely upon no one thing; but, beginning the work in elementary schools, where all can be reached, they carry it on through evening schools, through Sunday schools, through schools for special industries, even in towns of one or two thousand inhabitants, through schools of arts and trades at frequent intervals; they advance it by popular lectures, by local museums, and by oft-recurring exhibitions; they complete it in great central technical universities and art museums, with their numerous and comprehensive courses. Thus, they provide for all ranks in life, for all the exigencies of art and of industry. To-day, in the workshops and manufacturing establishments of Europe, there are *millions of men and women* who have been trained, more or less efficiently, during the last twenty years, in art and science applied to industry." This summary embraces instruction in both art and science; but it is to be remembered that the great bulk of the instruction is artistic.

In England, the great centre of art instruction is the South Kensington Museum, which was founded in 1852, and upon which the government has thus far expended some twenty millions of dollars. But South Kensington is only the centre. In 1872, there

were 122 well-appointed local schools of art, in different parts of England, all under the direct supervision of the government. These schools were attended by 22,845 students, to whom add the 765 attending the National Training School at South Kensington, and we have for every 210,000 inhabitants, one well-appointed art school, with an average of 190 students. Were New York State as well provided, she would have 21 such schools, with 4,000 students. In England, there are also a large number of science schools, which give instruction in drawing, 69 of them submitting papers for payments and prizes in 1872. Of night classes, for giving instruction in drawing to artisans, and to youths more than twelve years old, there were 538, with an attendance amounting to 17,256. Then it is not to be overlooked, that drawing forms an important part of the instruction given in elementary schools both public and private. In the schools for the poor, 194,549 children were instructed in drawing in 1872. Thus, a more or less efficient knowledge of art, as applied to industry, is rapidly spreading among all the industrial classes of Great Britain. Indeed, the instruction is so wide-spread that the public taste feels its influence, the demand for art-work increases, and thus the art-workman is stimulated. The result is, the manufactures of England have been so greatly improved in art qualities during the last twenty-five years, that their prices, instead of falling, as with us, have advanced in spite of the cheapening of production by labor-saving machinery, and by better control over the forces of nature. So marked, indeed, is the industrial revolution going on in England, that it has attracted the attention of all parts of Europe. Even France, so long the leader in all art manufactures, is profiting by the experience of England, is discarding her traditional methods in art-education, and adopting more scientific ones in their stead. It must be regarded as a noteworthy fact, that the different governments of Europe, in the efforts they are now making to improve their art-industrial education, follow English, rather than French methods, as shown by the action of Austria, Germany, Russia.

As to what is doing in France, Germany and Austria, for the advancement of art-industrial education, we will simply say that it is fairly described, so far as general scope and activity are concerned, by the account given of England. It is probable that Austria now has the most comprehensive and most efficient system of art-industrial education to be found anywhere. She is fully resolved to regain, by the skill and taste of her workmen, more than all she has lost in battle.

It may surprise some, after reading Dr. Langl's account of well-appointed and prosperous art schools in certain German and Austrian towns, to find that the population of these towns is so insignificant that geographers have not thought it worth while to give them a place on their maps. But it is, also, to be observed that of the 122 English art schools, 28 are located in towns with a population less than 25,000; 10 in towns with a population less than 10,000; 4 in towns with a population less than 5,000. Thus it is

seen that art schools are not for large cities alone, but for towns with a few thousand inhabitants, and with industries to be directly promoted by instruction in drawing and the arts of design.

It is very clear, therefore, that art instruction, like instruction in other things, is fast finding for itself a firm scientific basis; that it is not much longer to be merely a matter of caprice, of unintelligible and unteachable feeling. Art-science, derived from a study of the works of the past and of the nature of art itself, is making rapid advancement. It is beginning to be fully realized that the great masters always worked according to rational methods, and that their genius manifested itself in hard work, and in a masterly use of the scientific principles which lay at the bottom of their art. Some of the specific principles to be observed, according to Dr. Langl, whose report is eminently pedagogical, are the following:

1. All drawing instruction should rest upon a geometrical basis.

2. Conventional forms should be drawn before natural forms. The human figure not forming a sufficient basis for art instruction, and not a good beginning.

3. Much attention should be given to the drawing of historic forms, which illustrate different styles of ornament.

4. Nature should be studied under the guidance of geometrical forms and historical treatment.

5. In the order of instruction, the rendering of pure forms should take decided precedence of light and shade.

6. The instruction should not be limited to any one kind of drawing.

7. In order to develop the taste of the learner, the drawing copies and models should be as beautiful as it is possible to make them.

8. The instruction should be rational and not dogmatic; that is, the pupil should not only learn to do a thing, but learn the reason for doing it.

9. The pupil should be constantly exercised in making original designs —original application of all the principles he acquires.

10. The instruction, in order to reach all, as demanded both by general culture and by industry, should be made universal, and should begin in the primary school. Special applications should be reserved for special schools.

Thus, it will be seen, as Mr. Stetson justly says, that these leading European nations are arming for a new contest, in which are involved issues as important as any which have been decided on the field of battle. In the minds of the most enlightened European statesmen, a healthy and diversified industry is regarded as the surest basis of national prosperity and power; and to secure this result, the widest educational facilities of the time are brought into play. The adult artisan is not regarded as an independent atom, working according to caprice, or in obedience to his own selfish desires, but rather as a part of the national brotherhood, whose taste and skill becomes a part of the national concern, and which can be directed by wise educational provision. In these countries the idea no longer exists, that the citizen is, or should be, simply a soldier; it is regarded as

equally important that he be an industrial worker, and, as such, that he should be as thoroughly trained as though he were to be the former.

In the face of all this education and preparation, what is this country doing for her future industrial classes? Speaking broadly, we should say, very little indeed. Nowhere in the country have we a single industrial school that can be compared with those that exist in almost every manufacturing town in Europe. Nowhere in the country have we a single art school deserving of the name; while, in our general system of public education, the importance of industrial education is nowhere generally recognized. In opposition to this statement, it may be said, that Massachusetts is endeavoring to engraft upon her system of education, industrial features, and that she has established a Normal Art School, while institutions with similar aims are established in New York and Philadelphia. But these are, at least, only efforts in the right direction. It is true that Massachusetts has done most in this direction, but the movement in that State is, as yet, unappreciated by the people at large, and all that has been attempted throughout the State is more than equalled by what has been done by many a provincial European town.

We are glad to see indications that some of our leading public educators are, at last, beginning to appreciate the value and importance of industrial education. It is, nevertheless, a fact that for some time to come we must expect to hear that industrial education, and particularly industrial art education, should have no place in our public schools; that there is no time to devote to it; that, no matter what European nations may do, we should simply attempt to teach the few elementary branches, such as reading, writing, arithmetic, grammar, and geography. We can hardly tell how long it will take to get this nonsense out of people's heads. Possibly, ten or fifteen years hence, when our American children, able to read with the utmost facility and expression, using language with the utmost grammatical correctness, able to give the names and lengths of all the rivers on the globe, as well as to give all the capes, bays, and sounds, capable of using arithmetic for all purposes, save practical business—possibly, when we shall have educated to all this, and have left our pupils utterly ignorant of every principle of art and science, as applied to industry, and when we see them standing, with all the education we have given them, completely ignorant of every practical pursuit in life, and completely helpless in competition with their European competitors, we may then be led to regard the opinion that, because education in the three R's was sufficient twenty-five years ago, it can be made to answer in the broader activities and interests of to-day.

At a Recent Meeting of the Brooklyn Board of Education, a communication was received from a large number of principals and academic class teachers, looking to a modification of the course of study, particularly with reference to the higher grades in the Public Schools.

Although the existing course of study is the result of a revision, late in 1874, and has only been in practical operation since the first of January, its requirements, as claimed by these teachers, are more than can be met by the ordinary pupil, in the higher grades, within the time specified for its accomplishment. It so happens, that at the time of its adoption, several members of the Board expressed a well-grounded fear of this result, and, although the time during which it has been the basis of solid work is claimed to be too short to properly determine its failure, it is safe to assume that the judgment of the principals and the higher class teachers, has been given under such circumstances of practical knowledge and experience, as to commend it to and justify the most careful consideration of those with whom the responsibility rests.

In addition to this general statement, it is known that many pupils, notably in the higher classes, are compelled to devote to study, many hours which should be given to recreation and sleep; indeed, not a few of these have already given such marked and alarming evidence of physical stress, as to compel, in some cases, a temporary cessation from study, and, in others, an absolute withdrawal from school.

There is no occasion to discuss in detail the question of effectiveness of these studies; they are not satisfactory in their results, it is very generally conceded by those who really know most about it, and any question involving, as this does, the advancement of our educational interests, is certainly entitled to prompt and studious consideration. In New York and other large cities the existence of High Schools substantially modify the conditions here complained of, namely: superficial, unsubstantial work, owing to too great a number of studies, and the inadequate length of the term to which the course is limited.

Thoughtful people are beginning to believe that the establishment of the High School element in our organization, will not only result in making the system of instruction more consistent and complete, but that this thoroughness may really be accomplished at less cost. All our school buildings need to be remodelled, as to accommodation and convenience, and all our methods need re-adaptation, with the view to fit them for lower grade schools, in which the great number of pupils who leave school below the age of 14, which is the fact in all large cities, may receive instruction more in consonance with their needs.

That a number of pupils, in excess of all those attending our so-called academic grades, can be concentrated in one building, and given more thorough and advanced instruction than they now receive, is not to be questioned; that this instruction can be given, at a less cost. year by year, than it now costs the city, is a fact which justifies the change; and while the Brooklyn Board of Education is discussing a question of such vital interest to its schools, it is to be hoped that it will resolve to step up to the platform occupied by cities who have found, by experience, the value of High Schools.

SKILLED LABOR AS AN ELEMENT OF NATIONAL PROSPERITY.

In the struggle for supremacy in manufacture, which has so long existed among the nations of the Old World, the necessity and value of special training and skilled labor have been amply demonstrated. Both have been fostered with sedulous care, not only by the manufacturers themselves, but also by all enlightened governments, who very rightly regard the question as one of national importance.

The capital and enterprise of this country have long since created intimate commercial relations with trans-Atlantic nations. Every year witnesses an increasing growth of these relations, and it is almost the manifest destiny of our people to share in the rivalry we have named for excellence in invention and artisanship. It is essentially an American element to enter with enthusiasm upon this peaceful strife, and it will everywhere meet with cordial indorsement. A higher and thorough education in the mechanical arts and sciences is obviously a leading factor in both our self-sustaining resources and in our solid prosperity as a nation. To secure this desirable result, persistent, intelligent and skillfully directed effort is necessary; and another obstacle that is always difficult to overcome is the large outlay in the educational process which properly constitutes a part of the problem.

Ordinary labor can make no progress in competition with the infinite resources of machinery; but skilled workmen and those who have been technically educated in various mechanical pursuits, are copartners with machinery, and furnish brain capital for an intelligent and economical utilization of its varied powers. Such training may be a natural outgrowth of our common school system, an optional road for the student to travel, but encouraging him by many an honest incentive to enter upon a career of industry, usefulness, and success in life. There would ultimately no longer be a necessity for importing skilled labor from abroad, and the solid intellectual attainments of the American citizen would be advanced a large percentage beyond what they now are. With the increased skill and intelligence of our laborers, there would be an accompanying increase of self-respect and higher social life that would combine to make the country strong and vigorous where it is now comparatively weak. Every community would gratefully appreciate the benefit derived from the presence of such a class of citizens. There are numerous arguments in favor of a generally practical education in the schools, that would be adaptable and useful to the majority of scholars, and fitly prepare them for entering upon specific pursuits in life.

The question of skilled labor for women, is one deserving special consideration. Every girl should, in some way, acquire a thorough knowledge of some useful pursuit—knowledge that she may, if necessary, apply with more or less facility to her own support. There are reverses of fortune for women, in many ways, often sudden and unanticipated, and in many

instances, they find themselves facing the world penniless, and, possibly, with children or aged parents to support. It is a fact, that thousands of ladies who have never fitted themselves for any occupation whatever, have been forced into the humiliating position of seeking employment they were unable to perform well, or of becoming absolutely dependent upon others. Seeking maintenance, under such circumstances, must, indeed, be hopeless and discouraging. Upon this subject, the *Saturday Review* makes the following sensible remarks:

There is no need any longer to argue the question whether or not women whose social position is that of gentlewomen shall be allowed freely to enter the labor market. Necessity has taken the matter beyond the reach of controversy. Thousands of ladies are to be found without any male relations who can support them. They have to choose between starvation, dependence upon charity, and honorable work. Surely the last is not so very much to be dreaded. Charity is too often accepted as if it were the rightful reward of laziness and incompetence. Too often it is given on those terms. There are several reasons why the number of women who ought to make money is daily increasing. The same income which enabled a middle-class family to live in comfort twenty years ago will not do so now. This is partly because of the rise in prices, but chiefly because many things which used to come under the head of the luxuries of life have now become its necessaries. Professional men, except those in the first rank, can generally do little more than make ends meet. They cannot lay by fortunes for their daughters, or pay very heavy insurance premiums. Then, too, business has assumed a more speculative character, so that the merchant, rich to-day, may be ruined to-morrow, and his luxuriously brought-up children find themselves left penniless. Young men do not marry so early as they did fifty years ago. A greater number of them seek their fortune away from home, whilst few single women above the rank of servants emigrate. All these causes combined leave many thousands of women who are known as ladies in a position which obliges them to become self-supporting. There is plenty of room for them all if they will consent to give a good day's work for a good day's wages, but not otherwise. They must take the same position as men in the labor market, and be able to offer market value in the shape of skilled work before they ask to be paid for it. There is, however, a growing and most encouraging desire amongst young girls to be taught to earn their own livelihood, They begin to understand that there is no degradation in being paid for work, provided the work done is worth the money, but that there is degradation in being dependent on relations or friends, and that the life of busy idleness which most girls lead is simply beneath contempt. Some ambitions besides those of being fashionably dressed or getting a pair of new earrings are arising in their breasts. Those who have no home duties want their share in the world's work and in the prosperity which they see earned by hard-working men. Even in a family where the parent's income is sufficient to provide necessary things for the children, the girls may like to be able to earn some pocket-money. The love of art and of pretty things, which is becoming so universal, makes them wish for a picture to hang in their own room, or perhaps a pair of new curtains or a cover for their writing-table. They want an expensive book on some special subject, or a rare plant for their flower garden. They feel that they cannot ask their parents for these unnecessary things, and long to earn money to buy them. Every girl might be so brought up as to acquire sufficient proficiency in some one thing to be able to make money by it. There are other cases where the power of adding a little to a small income would enable two young people to marry instead of being engaged for years.

There is a pressing necessity for the immediate consideration of this subject of educating the children of the country to skilled labor of some kind. It is of vital importance as an element in the future welfare of the nation, and it involves the happiness of thousands of families.

QUALIFICATIONS OF TEACHERS.

Manifestly, that question involves perennial anxiety to all concerned, which has to do with the determination of the qualifications of an individual to teach, and as to what constitutes a standard as invariable as possible, of scholarly attainment, culture, experience, age, health, disposition, etc., etc., all elements, clearly, in the problem under consideration.

In large cities, where certain rigor of form and Brutus-like impartiality is apparently maintained, and where the requirements are, seemingly, of a sufficiently high standard as to justify the acceptance of a candidate who shall successfully attain to it, it is, nevertheless, a matter of important inquiry, involving more or less mystery, how so many weak and incompetent persons secure, in the first place, and maintain them afterwards, their positions in prominent schools, to a more or less disadvantage to the city, which is entitled to the very best class of employes.

Extraneous influences, often personal, sometimes political, misplaced sympathy, which amounts to injustice to those who are more efficient, have their effect upon those who should be inflexible, but who are not.

A large proportion of those who seek employment, with no very definite purpose, as teachers, at the start, are too superficially educated, and lack the training which it must, sooner or later, be the rule to insist upon, to prepare them to enter upon the work of a profession, for which special training *is* just as much a necessity, as it is in the case of those of the lawyer, doctor, and others, which, each in their own way, prescribe for those who seek to enter upon their practice.

In one direction, a defect is pointed out by the *Toledo Blade*, which says:

> That too much merely technical study is required of teachers, as well as pupils, is too often the case, and that sound, practical common sense, and a long experience should not be undervalued, is demanded by the best interests of our educational system. A professional teacher, who is required every two years to review text books, and to otherwise make extensive preparations for periodic examinations, finds little time to pursue a course of study or readings, which will tend toward higher professional developments.

We cannot expect to make, with rare exception, competent teachers from school girls of 16 or 18, deficient in scholarship, and essentially so, in the knowledge of the elementary studies, which, in charge of primary classes, where we persist, with perverse ignorance, in placing them, they require it.

We seek no stronger ally in our strictures than the Superintendent of Public Instruction, who, in a recent report, says of this class of persons, from which our corps of teachers is most largely recruited at the present time:

> Indistinctness in reading, unfamiliarity with the correct pronunciation of words, and incorrect spelling to a surprising extent, were the chief causes of failure.
>
> Joined to these deficiencies were crude and indistinct notions of practical operations in arithmetic, and gross blunders in the locations and names of important cities and countries.
>
> Of eleven persons, eight of whom were graduates of academic classes, who were subjected to a competitive examination, only two

succeeded in performing the following proposition in mensuration, after two trials on separate days: "Given one side and the diagonal connecting two opposite angles to find the area in acres. The length of the given side is 1,827 rods, and the diagonal is 2,765 rods." On the first day, after attempting for one hour to solve a problem in arithmetic which should require not longer than five minutes, all of the candidates failed to give a correct solution. On the second day, another hour was granted, and at the end of that time only two had succeeded. So unfamiliar were the candidates with the tables of areas and distances, that three of their number had used 640 as the divisor to reduce square rods to acres, instead of 160. Want of exactness in statements—a fault almost fatal to efficiency in a teacher—is another common defect. Language is used that indicates an obscure notion of the subject floating around in the brain of the applicant, but so crude, chaotic, and vague as to be but slightly raised above absolute ignorance. Feebly indicating, as this does, some former cognizance of the study, it is certainly not sufficient to warrant the Superintendent in authorizing her to be the instructor in what she herself possesses so ill-defined an idea of. Thus, a candidate—graduate of a State normal school—defined a passive verb to be a neuter verb joined to any other verb—an inexcusable error, and yet the reply indicated a faint glimmering of the truth. Very considerable numbers fail in an exact, or even comprehensible, definition of interest, proportion, or equation of payments in common commercial operations; and many fail in correctly stating the tables of weight, measures, and distances.

In witnessing an examination, one is amused at the frivolous and thoughtless way in which what should be a very serious subject is considered. The familiar school trick of prompting frequently calls for reproof and condemnation from the examiner, with very much the same effect that it would have on a young urchin detected in wasting time on the strategetical waylaying of an unsuspecting fly on his desk. On this subject he says:

In written examinations, there is little need for a class espoinage, for the detection of communicated information, not only because the time allotted for answering each question is so brief, as to require the most vigilant attention of each applicant to her own work, but for the reason that the written exercises develop the fact of surreptitious aid by internal evidence.

Collusion is there detectable by the imperfection of the answers, the communicated information being obtained so furtively, that it is but imperfectly uuderstood, and, therefore, almost invariably recorded in such a vague, and often ludicrously blundering form, as to lead with absolute certainty to discovery.

Thus, an applicant, during one examination, embarrassed by the query—"What is a despotic monarchy?"—received a telegraphic reply from her neighbor, which she interpreted, and wrote—"One which, as no particular, but sub to usurp." On referring to the paper of the adjacent candidate, the answer to the same question was written—"One which is no particular, but subject to usurpation." Tracing this whimsical error still further back, it was found to have originated in the statement by a third applicant—"One which has no particular ruler, but is subject to an usurper." Each had copied what she comprehended of the first blundering answer, and added from her own ignorance to its absurdity.

Another applicant, furtively endeavoring to supply her deficiencies by communicated replies, wrote in answer to the query—"What Empire in the south-east of Europe?"—interpreted the hieroglyphic signs of her neighbor to mean Austin, and so wrote it.

The exercise books testify to their own integrity by internal evidence; and the examiner soon becomes an adept in detecting surreptitiously obtained information.

There is enough in this subject to justify all the concern that it annually excites in the school institutes and Teachers' Associations.

What with the National and State organizations, pledged to reform and advance in all that will benefit their profession, it is a matter of surprise that a *training college* is not advocated with such vigorous unanimity as to secure some practical recognition of its value and importance to all interested in educational progress.

THE SCHOOL-ROOM.

[For School Notes and Queries, and Correspondence. Communications and Contributions to this Department will receive prompt attention.]

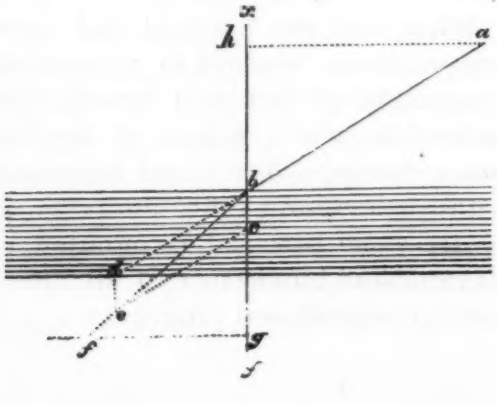
ABOUT A RAY OF LIGHT.

[S. B., a very accomplished teacher of this city, sends us the following paper, which she states, has been the subject of considerable thought, in her efforts to present the matter treated of, intelligently, before her pupils. We make some comment also, and shall be glad to hear from any of our readers, to whom the subject may suggest points for discussion. We will also be glad to hear from Miss B. again :]

A RAY OF LIGHT, on entering a denser medium, perpendicularly, suffers no refraction, but is retarded in its velocity, obeying the ordinary law of motion—viz.: that a body acted upon by two unequal forces, in opposite directions, moves onward in the direction in which the strongest force acts, and with a velocity equal to the difference of the forces.

A ray of light entering a denser medium obliquely, however, is affected by the two forces acting in different, but not in opposite directions. It again obeys the law of ordinary motion, namely, moves in the direction of the diagonal of the two forces.

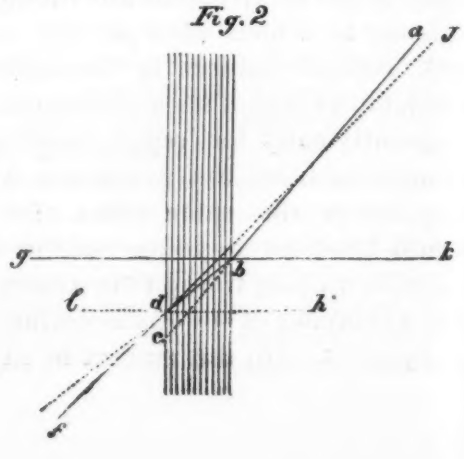
Fig. 1



Let *a b* be a ray of light entering a denser medium at *b*, let *b c* represent the resistance to the passage of the ray acting vertically upward; let *b d* represent the force with which the ray would proceed if it met with no added resistance, completing now the parallelogram of forces and drawing the diagonal, we have the ray proceeding in the direction *b e*, or bent toward the perpendicular *x y*.

And now, while on the subject of refraction, I would say a word about the passage of a ray of light through a pane of glass. Our text books tell us that the refraction of the ray on leaving the pane exactly counteracts the refraction on entering, and that, consequently, the departing ray is parallel to the entering. This would be true if the ray entered the denser medium with the same degree of obliquity that it re-enters the rarer medium; but if it is refracted toward the perpendicular on entering the denser medium, it must re-enter the rarer at a smaller angle, and, therefore, be less refracted on leaving than on entering the glass; hence the tendency is to depress objects; thus :

Fig. 2



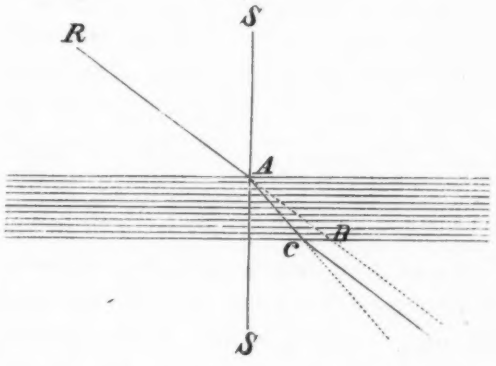
Let *a b* be a ray of light entering a pane of glass, *b c* the direction in which it would proceed if it suffered no refraction, *k g* the perpendicular at the point of impingency, and *a b k* the angle measuring the obliquity of the entering ray, *b d* the direction of the ray after refraction, *d* the point of re-entering the rarer medium, *h d* the perpendicular to this point, *b d h* the angle at which the ray re-enters the rarer medium. This angle is evidently less than *a b k*; hence the ray *b d* suffers less refraction than the ray *a b*. Let *d f* represent this refracted ray, produce it to *j*, which is evidently below *a*.

What we should teach, I think, is that every ray is depressed, but that all rays are equally depressed, and that, therefore, all rays which are parallel on entering the glass will be parallel to each other after refraction (not parallel to the entering ray, as the text books say), and that, therefore, all objects retain their relative positions. If I am wrong, will somebody set me right? S. B.

COMMENTS.

Although the undulatory theory of light is accepted as being the true theory, we may, for the purposes of this discussion, assume a beam of light as being of extreme thinness, moving in a straight line with immense velocity, nearly 200,000 miles a second. This velocity is based on the assumption that the sun is 95,000,000 of miles distant from the earth. As a result of recent observations, calculators reduce this to 91,500,000, so that the velocity, according to late authorities, is decreased to 186,700 miles per second. As long as this beam passes through a medium of the same density it suffers no change, but as soon as it encounters a different medium it is operated on by three forces, absorption, reflection, refraction. It is not necessary to consider the first two, so we will confine our attention to the last.

Fig. 3



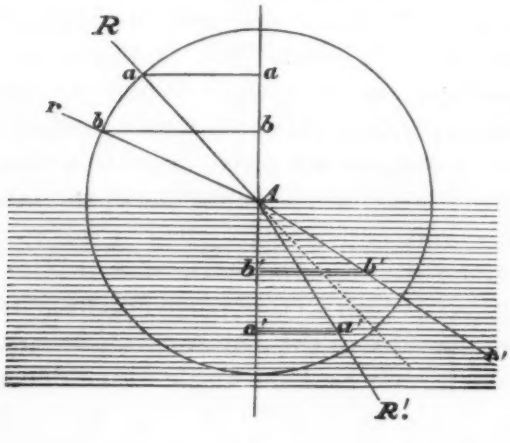
When a beam of light passes from one medium into another, it is bent from its course and it is said to be refracted.

Let *R A* be a beam of light falling on a piece of plate glass, with parallel sides, at a point *A* on its upper surface; instead of passing through in a straight line *A B*, it is deflected towards *C* and passes through the plate in the direction *A C*; when it reaches *C* it is again deflected, but in the opposite direction, passing into the air in the direction *C D*, parallel with its original course. The rule may be briefly expressed as follows: When a ray passes from a rare to a denser medium it is usually refracted *towards* a line perpendicular to the surface of the latter, and, conversely, when it leaves a dense medium for a rarer one, it is refracted *from* a line perpendicular to the surface of the denser substance; in the former case the angle of incidence

is said to be greater than that of refraction; in the latter, it is said to be less. In both cases the direction of the falling ray is in the plane *R A S*, which is formed by the falling ray and by the perpendicular *S A*, drawn from the spot where the ray is refracted. The angle, *R A S*=*B A S* is the angle of incidence, and the angle *C A S* is the angle of refraction, the difference between the two angles, *B A S*—*C A S*=*C A B*, is called the refraction.

The amount of refraction for the same medium varies with the angle of incidence; it is nothing when *R A S* is 90° when the ray falls in the line *S A*, and increases as the obliquity increases. As soon as the medium through which the light passes, changes, the amount or angle of refraction changes, it being different for different media. The method for comparing the refractive powers of various media is by means of the ratio existing between the lines of the angles of incidence and refraction, that of the latter being taken as unity. This ratio is called the index of refraction. For instance, in the case of glass, the index is 1.5; this being known, the direction of a ray of light entering glass

Fig. 4



can readily be determined. In the preceding figure, No. 4, let *R* be a ray of light falling on a plate glass surface at a point *A*; from this point drop a perpendicular from the surface, and continue it through the new medium, and round the point *A* describe a circle with a radius, say of unity; according to the law above stated, the ray will be bent towards the perpendicular in the direction *A R*, at the points where the incident and refracted rays cut the circle, drop perpendiculars on the line at right angles to the surface of the dense medium; these lines *a a*—*a' a'* will be found, in the case of glass, to be to each other as 3 is to 2. Again, let *r* be another ray, making a greater angle, it will be refracted in the direction *A r'*; if we drop perpendiculars from the points where these rays cross the circle, such as *b b*—*b' b'*, we will find these lines to be in the proportion of 3 to 2. These lines are called the sines of the angles of incidence and refraction, and the ratio is constant for the same medium. These values have been carefully determined by experiment, but the methods are too intricate and too technical to be explained in an article of this character. By having the index of refraction, it will be seen that the refracted ray can always be constructed. It will thus be seen that it is impossible to constuct the parallelogram of forces shown in figure 1, as the force *b c* is not attainable. The direction of the refracted ray, however, can be obtained by describing with *b d*, (fig. 1), as a radius, a circle; having the direction of the ray *a b*, find, by a scale of equal parts, what the sine *a h* is, if the medium is glass, *a h*:*f g*::3:2.

With respect to fig. 2, *a* is a ray of light entering a denser medium, glass, at a point *b*, making an angle *a b k*, with a perpendicular *k g* to the surface of the glass, it is refracted towards this perpendicular, the angle of refraction being *g b d*, and the refraction being the difference between these angles, which is *c b d*, this carries us to the point *d*, on the lower side of the pane of glass; now, the ray of light is refracted by passing from a dense into a rarer medium, and is, by the law above mentioned, deflected from the perpendicular *k g*; and as the sines of the angles of incidence and refraction bear the same ratio for similar media (air in this case), it necessarily follows that the angles *a b k* and *f d l* are equal, and consequently that *f d* is parallel with *a b*; in other words, the ray of light leaves the glass in the same direction that it entered it. This can be further demonstrated; the angle of refraction *g b d* is less than the angle of incidence *a b k* by the difference between *g b c* and *g b d*=*c b d*, this is the refraction due to the ray of light entering the denser medium; as it leaves that dense medium for the rarer one, which it formerly occupied, its refraction in the opposite direction must be the same; consequently, *g b d*+*c b d*=*a b k*, which is equal to *f d l*, the angle made by the ray with the perpendicular after it has passed through the denser medium, and as when one straight line crosses another straight line the opposite angles are equal, it follows that when the opposite angles are equal that the line crossing is a straight line.—Ed.

gbd. The angle made by the ray with the perpendicular *k g*.
cbd. The angle measuring the refraction.
abk. Which is the angle of incidence.

WHAT SHALL WE DO WITH THEM?

H.

[We have received the following communication from a practical and experienced teacher, with reference to a subject of considerable interest to those in charge of our public schools. We prefer to receive shorter articles for this department, but nevertheless cheerfully give space for this one.]—Ed.

There is one question connected with our graded schools to the solution of which, time contributes nothing; and to whose complexity, compulsory education will add much. There are pupils whose attendance for various reasons, real or fanciful, does not amount to more than fifteen or twenty weeks in the year. Pupils are taken from the lowest primary grade in early Spring, set at work, and do not return until late in the Autumn. This occurs in all the grades of the schools, chiefly in the primary and lower grammar grades. Suppose it to happen in the primary grade. When the boy returns in the Autumn, you find him mentally in this condition, his multiplication table, wrought into him with so much manual labor, is sadly mixed, his spelling would raise a smile on the melancholy face of Josh Billings, and you lose faith in the opinion that early impressions are the strongest. To your question, "What do you wish?" he replies, "To come to school." Perhaps this is the third or fourth time he has thus presented himself. Now, what will you do with him? He cannot join his former classmates; they have advanced nearly two grades. Your personal examination shows you that he is not fit for his former grade; you do not like to put him lower, for there comes over his face, when you suggest

it, an expression that appeals so strongly to your good nature, that you return him to his former grade. Here he is surrounded by boys much younger than he, and enters on the wearisome routine, already more or less familiar. If an active boy, full of life, he chafes under the discipline which rests lightly on his younger companions, and there is constant warfare between him and his teacher. His studies do not interest him, fresh from the busy street life, because he sees no use in them, and they furnish him no employment. Irregular attendance is the result, until, at length, he is discharged, and another is added to the multitude of half-grown boys idling about the streets. When this has been repeated several times, he becomes so large there is actually no place for him in the day schools.* He tries the evening schools, where his irregular attendance and their short sessions prevent any progress. His industrial life is as unsatisfactory as his educational life, and by the time he bids adieu to the latter he has achieved the title of loafer in the former. Every principal can name a score of such extreme cases as this, and innumerable ones where the result is not so wretched. Now, what shall we do with them?

First—We may refuse to take such irregular pupils, on the ground that we have enough regular ones to fill the seats. This is too true in many cases, but it would be like covering a sore, and calling it cured, because out of sight.

Second—Continue in the same practice we have pursued. This is not satisfactory, and can, from its nature, never be.

Third—Establish in every grammar school an ungraded class, under an experienced teacher, who believes in boys, and whose salary shall be large enough to encourage her in the belief.

To this class send all those who can attend but a few weeks in the year; those whose age is greatly in advance of pupils of similar attainments; those whose mental habits and constitution are such that there is no prospect for them to complete the grades in a reasonable time. The teacher will teach them as a country school is taught—in classes of five or six, the others studying their lessons under her supervision, for this class of pupils have but few conveniences for home study. Here the pupil, who, in his regular grade, would write only small letters, and a very few of them, will complete the alphabet, both in small letters and capitals, and receive instruction and practice in writing letters. Practical questions in the trades and arts will take the place of the long examples of abstract numbers in the regular grades. Daily practice in the correct use of language will not disgust the boys, as the rigmarole called grammar does in the grades. Imaginary voyages in ships, filled with imaginary cargoes, will fill the study and the boy with life. The air we breathe, the water we drink, and the bread we eat, will give a healthy direction to his inquiring mind; and when his short term is ended, he will leave the school with

*The writer asked a young lad where his brother, who formerly attended school creditably, was. "At home," was the reply. "Why doesn't he come to school?" "He says the boys are all ahead of him, and he is ashamed to go into the sixth class—he is so large."

regret that he cannot pursue his studies further, instead of joy at ending them, conscious that he has learned something of use to him in his future life. Who can suggest a better plan?

Since the above was written, I have seen in the *New England Journal of Education* an extract from the quarterly report of the Superintendent of Public Schools in Providence, R. I. He says:

More than a year ago I called the attention of the committee to the fact that less than one-fourth of the children that enter the grammar schools complete the full course. To provide especially for this large and deserving class, I then recommended that in each of our large schools there should be one or more rooms ungraded, in which the studies should be specially adapted to the needs and capacities of those who can spend but a short time in school. From a further examination, I am fully convinced that some such arrangement would not only be wise and humane, but would largely extend the usefulness of our schools. Pupils, who for any cause cannot enjoy the full privileges of our schools, should be required to pursue those studies, and those only, which will, in the shortest time, best fit them for the active duties of life.

"CONSISTENCY'S A JEWEL!"—often improperly quoted, "Consistency, thou art a jewel!"—is found in Murtagh's Collection of Ballads, published in 1754, as follows:

"Tush! tush! my lasse, such thoughts resign,
Comparisons are cruell;
Fine pictures suit in frames as fine:
Consistencie's a jewel.
For thee and me, coarse clothes are best—
Rude folks in homelye raiment drest;
Wife Joan and Goodman Robin."

WE have received the following answers to the question proposed in the last: "A carpenter planed off the surface of a white pine board; what remained?"

1. "A smooth surface."

THIRD CLASS.

2. "He couldn't do it, since a surface has no thickness." G.

3. "It depends upon the kind of surface meant. If it is simply the outside of the board, then the inside is left. If a mathematical surface, then the whole board was left, for he planed off no thickness." BLUE SHIRT.

4. "There is no sense in the question. How can a fellow do a sum with no figures in it? How thick was the board before he began to plane? How long did he plane? Did he plane fast or slow? How thick were the shavings? Now, if you'll tell me these, I think I can get pretty near the answer. We've got over to two unknown quantities, and I've looked all over the algebra, but I can't find any rule for *all* unknown quantities. Now, give me the figures, and if there is any Supp. in the city who can do it, I can."

SUPP.

5. "MR. EDITOR—'Geometry's' question, which you submit to the consideration of your readers — to wit: 'A carpenter planed off the surface of a white pine board; what remained after the operation?' is merely one of custom's, or time-immemorial's, lingual errors. 'Open your mouth,' is of the same class of errors. Open your lips, or, to be *super*-exact, open your jaws, cheeks, lips and facial muscles, that the *space* called *mouth* shall be visible, would be nearer the *lingual* truth.

"Geometry can easily discover, upon this hint, that the carpenter did not plane off the *surface* of a white pine board. It is *plain*, that he *planed* off some white pine from a white pine board, if he *planed* the board at all. Geometry says he only *planed* the surface off; that being the fact, the answer to his query is, the whole board remained. The logical sequence, therefore, proves plainly that no planing was done." W. H. S.

THE FOLLOWING was sent to "The School Room," to which we append the answer:

A ship at sea sprung a leak. The hole in its bottom was just one foot square. There was but one board on the ship—this was sixteen inches long and nine inches wide. It had precisely the requisite number of square inches, and the carpenter cut it in two pieces only, and these two pieces just fitted the hole. How did he do it?

The answer is: Start four inches from one end, cut down three inches, then lengthwise four, then down three, again lengthwise four, and then down three. The two pieces thus made can be joined so as to form a perfect square.

WE are asked to submit the following:

A young lady, on being asked her age, replied that 6 times 7, and 7 times 3, added to her age exceeded 6 times 9 and 4, as double her age exceeded 20. How old was she?

WHAT is the value of the following expression:

$$6.3\sqrt{1252,12}$$

What are the values of x and y in the following equations:

$$x^2+y^2=7.$$
$$x^2-y^2=11.$$

PESTALOZZIAN.—You are right. The theory of Pestalozzi, in intellectual education, was vastly superior to his practice. He was not an organizer. His power was in his personal sympathy and interest in his pupils. His assistants, for the most part, gave form and arrangement to his principles, and their methods, often crude and inconsistent, were but the earnest and prophecy of what yet remains to be done. The special evil that has attached to Pestalozzian schools, both in this country and England, has been the tendency to accept his methods and devices, in their boldest and most abstract form, instead of applying his doctrines, which are most valuable and suggestive, in the light of the advancing knowledge of psychology. The Oswego School, and others, following its lead, have not made a triumphant success in the matter of object teaching, and they are in possession of no device nor talisman that any thoughtful teacher may not equally make use of in their all-important work. Object teaching is just the method of nature—the child's own method—whereby the outward world (objective) is made the instrument both for furnishing the mind and forming it.

THIRD GRADE.—"My principal insists that all of the boys in the class shall read, write, spell, and do all of the work equally well. No allowances are made for home influence,

physical defects, or degree of mental activity. Is this right?" Certainly! No one must be false to his ancestry. A member of this family, named Procrustes, in olden times, kept an inn. He had but one bed. If the traveller exceeded the bed in length, he cut enough from him to remedy this defect. If he was too short, he stretched him until his diminutive size was no occasion of offence. It was a beautiful sight to see the travellers lying on the bed, all of equal length, but the spectators enjoyed it more than the travellers.

ARTISTIC.—Certainly! Don't fear that your class-room will become too attractive. Encourage each class to leave behind it some more attractive ornaments than spit-balls and ink stains. An illuminated motto, a pretty chromo, a steel engraving, will be objects of interest to each member who revisits you in after days, and a source of inspiration to those now or then under your charge

GEOGRAPHY.—Yes. Ask your pupils, without warning, to point to the north, and see how many will point to the ceiling. *Yet this geography!* It would materially assist if all school-houses were set with the points of the compass conspicuously displayed somewhere about the building.

B. D.—We should think so. There can be no harm in trying.

DISPUTE.—J. Sullivan Thorne was President of the Board of Education immediately preceding Mr. Whitlock, and *not* Cyrus P. Smith. We believe that Mr. Stephen Haynes held for a short time the same position.

J. H. S.—The quotation you send is in a volume, published by Appleton, entitled "Education," by Herbert Spencer.

H. J. S.—Contrary to the general opinion, emulation is not a good motive in the government of children. The petty jealousies, envyings, and open quarrels engendered by an effort to stand at the head of the class largely outweigh any of the apparent benefits. If you will carefully watch those of your class who are striving for the book, you, we think, will adopt our views.

E. K. M.—You say, "I have so many different dispositions with which to deal, in my class, that I am almost ready to give up." Don't do it; for you are wrong in your facts. There is really but one disposition in the class which occasions the difficulty. Get that right, and you will have but little trouble with the others. If you will look in the mirror you will see the owner of it.

PEDAGOGUE.—Yes, we have seen him. The *blasè* teacher (if the printer gets this *blasted*, we shall not find fault), to whom nothing is new; to whom the educational world is—as Emerson says—a sucked orange; who has tried all plans; who smiles patronizingly on the young teacher; enthusiastic over some plan for getting his pupils out of routine, or for shortening their labors. He pronounces a new text-book on geology, fairish, and is prepared, at a moment's notice, to decide the merits of a complete trigonometry, but suggests that both would have been better if his advice had been asked. We have not the slightest idea of what *earthly* use such individuals are; so we can't advise.

MUSICUS.—Our school songs *are* open to criticism, especially many used in primaries; for them, the music ought to be simple, expressive, melodious, and, with the words, should be cheerful and enlivening. Our German friends understand this matter, as their kindergarten songs fully testify. When we hear the little ones piping out some operatic selection to meaningless words, or boldly declaring that "Champagne Charlie is my name;" or, with their eyes and rosy cheeks giving it out as their solemn conviction, to the idols of their withered hearts, that "they are growing o-o-old," we feel that a school for teaching adult elephants to dance, and patriarchal hippopotami to waltz, would be abundantly patronized.

GRAMMAR.—The use of the word "got" is, in nine cases out of ten, superfluous. "Have you got a knife?" "Have you got a cold?" and many kindred expressions, would be greatly improved by omitting the word. You wish to ask if the person, at the time of inquiry, owns a knife? This is fully implied in the word "have." The indiscriminate use of the word is so common, that its inappropriateness is not noticed.

DECIMALS.—We don't know what a "decimal naught" is. Naught signifies the absence of quantity, as 0 apples. How much a tenth or hundreth of nothing is, we can't undertake to decide. The term, "decimal naught," must have been invented by the mathematician who said that "one hen taken twice is two hens."

How would some of our sixth grade teachers have set right the little girl in the following?

"I happened into a school-room one day while a class of very small boys and girls were reciting a lesson in arithmetic. It was about their first lesson.

"'Five from five leaves how many?' asked the teacher of a little girl of some six years. After a moment's reflection, she answered:

"'Five.'

"'How do you make that out?' said the teacher.

"Holding her little hands out, she said:

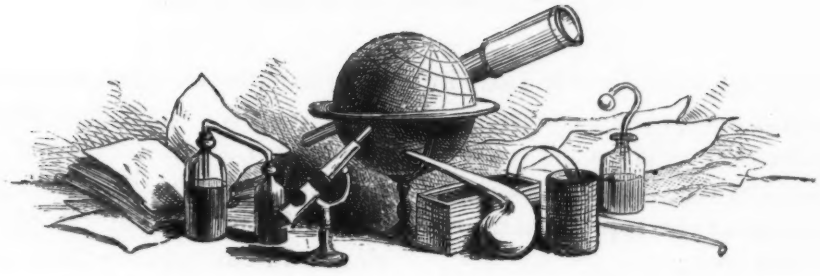
"'Here are five fingers on my right hand, and here are five on the other. Now, if I take the five fingers on my left hand away from the five on my right hand, won't five remain?'

"The teacher was, as we sometimes say, 'stumped," and obliged to surrender at discretion."

ELLEN B., No. 12.—No better, we think—but ask your local committee.

COOK'S TOURIST.—The public schools will, probably, close on the 3d of July, as heretofore.

EYESIGHT.—It is claimed by some that the "dim, religious light" that pervades the interior of Packer Institute is injuring the sight of many pupils. We do not believe that there is any foundation for this statement. The class-rooms appear to be well lighted and ventilated. Go and examine for yourself. You will be cordially received.



SCIENTIFIC MISCELLANY.

ENGINEERING STRUCTURES.

The Bridge at St. Louis.—Effects of Heat and Cold on the Great Structure.

The effects of change of temperature are, at the present day, taken into account in all engineering calculations. They determine the distance between the ends of the metals on a railroad track; necessitate the use of rollers at the end of the bridge trusses when the variation in their length, produced by rise or fall of temperature, is at all perceptible; require the use of expansion joints in long iron gutters, and the hot air pipes of a blast furnace, and have driven civil engineers, at times, almost to their wit's end for "compensating" contrivances.

During the erection of Southwark Bridge across the Thames, at London, the structure was almost ruined for want of observing this natural law, the expansion of the cast-iron of the arches under the sun's rays, producing a strain upon the pier, which had not entered into the engineer's calculations.

Since that time, bridges have been more carefully framed with respect to thermal influences. The engineer's endeavor is to have the expansion or contraction of one part counteract the corresponding change in another part, so as to increase the stability of the whole.

It will readily be seen, that the longer the span of any bridge, the greater the necessity for due caution in this respect. They have in St. Louis, a bridge with arches of five hundred feet; and, to any one who has the proper means of observation, the changes in the elevation of the crown of the arches are very perceptible. In the construction of the work, calculations and allowances were made for the extreme of temperature, through a range of 140 degrees, from greatest cold in Winter to the warmest day of Summer, and the calculated difference in the elevation of the centre pier of the upper chord, above the City Directrix, at these two times was about eighteen inches.

The bridge has now long been finished. During the year, the height of the centre piers of the top chords of the arches, above the City Directrix, has been noted, almost daily, at temperatures which have ranged from 92 degrees Fahrenheit, to 15° Fahrenheit; the elevations being taken with a level from the abutment of the bridge.

Now let us see how the actual facts correspond with the theoretical calcu-

tion. As the spans differ but little in length, the figures for the western span will answer every purpose.

Here they are (the "height"s that of the centre pier of the top chord above the City Directrix):

Date.	Temp. 3 P. M.	Height in feet.
May 6, 1874....	69° F.	63,548
June 29, 1874.....	77° F.	63,688
July 20, 1874.....	91° F.	63,757

Those are the higher temperatures. The cold weather showed the following state of things:

Date.	Temp.	Height in feet.
January 4, 1875.....	—10° F.	63,241
January 9, 1875.....	—15° F.	63,065

The observation of January 9, last is the last one taken.

Between the figures for July 20 last and those for January 9, which two days are, respectively, the warmest and coldest of the year, there is a difference in temperature of 107 degrees F., and of 0.692 feet, or nearly 8 5-16 inches.

This is an effect of temperature much less than calculated, due partly to the fact of the iron work being painted white, which lessens the absorption of heat in hot weather, and increases the radiation in cold weather, and also to the protection afforded by the roof of the bridge. This latter is strikingly exemplified in the fact that the river, while frozen above and below the bridge, has yet been open under it.

At a temperature of sixty degrees the arches assume their normal curve, all members of the two chords being in equal tension. A *fall* of temperature throws the centre of the lower chord and the ends of the upper chord into a state of compression, or, in other words, *lowers* the crown of the arch. A *rise* in temperature throws the centre of the top chord and the ends of the bottom chord into tension, and compresses the remainder of the two chords, or, in common parlance, *elevates* the crown of the arch.

The position of the chords, however, is not necessarily the same on days of equal atmospheric temperature, the temperatures of the iron varying several degrees from that of the air, and being affected by the amount of moisture present in that surrounding medium.

After the experience of the past nine months, the engineers and officers of the Bridge Company express themselves as entirely satisfied with the behavior of the bridge through all the climatic changes of that period, which have probably been as extensive as they ever will be in this generation or the next.—*St. Louis Globe.*

WE copy, from "NATURE," the following account of the recent fatal balloon ascent in France:

The balloon *Zenith* was sent up on the 15th of April, in order to determine the quantity of carbonic acid contained in the atmosphere, at an altitude of 24,000 feet. The "let go" was given at twenty-five minutes to twelve A. M. The captain was M. Sivel, and there were only two passengers, M. Gaston Tissandier and M. Croce-Spinelli. The ascent took place gradually in a slight E.N.E. wind, the sky being blue but vaporous. The rate of ascent was calculated to be nine feet per second, but diminished gradually. Shortly after one o'clock, the altitude obtained was 22,800, and the passengers were quite well, although feeling weak. The inhalation of oxygen produced good restorative effects when tried. Then a consultation took place, and the *Zenith* being in equilibri-

um, a quantity of ballast was thrown overboard. M. Tissandier then fainted, and is ignorant of what was felt by his friends.

At eighteen minutes past two, he was awakened by M. Croce-Spinelli, warning him to throw over ballast as the baloon was fast descending. He obeyed mechanically, and at the same time, Croce-Spinelli threw overboard the aspirator, weighing eighty pounds. Tissandier then wrote in his book a few disconnected words, and again feel asleep for about an hour. When he awoke, the balloon was descending at a terrific rate; no more ballast was left to be thrown away, and his two friends were suffocated. Their faces had turned black, and the blood was flowing from their mouth and nose. They were evidently dead. It was a terrible situation.

The only resource was to cut the grapnel rope, a little before the instant when the car should strike the ground, which Tissandier did with astonishing coolness. The wind had increased in strength, and Tissandier was obliged to tear open the balloon in order to stop it. It was caught on a hedge in a commune in Indre, called Ciron, 190 miles S.S.W. from Paris.

The tragic fate of Sivel and Spinelli is to be ascribed to the fatal resolution of accomplishing, at any price, a height of 24,000 feet, but mainly, no doubt, to the throwing out of the aspirator, which will be discovered somewhere, perhaps, unbroken, as it had been provided with a parachute.*

The only instruments broken are the potash tubes, for the absorption of carbonic acid. The experiment had been tried successfully; two aspirators had been used, but the tubes were not lodged in their proper case.

Careful readings were taken with the thermometer, and, although diminishing, the temperature was remarkably high:

9,600 feet	....	1° Centrigrade
12,000 "	....	0° "
13,200 "	....	0° "
15,420 "	....	5° "
19,600 "	....	8° "
22,960 "	....	10° "

The temperature of the gas in the interior of the balloon, was also observed by a new system. It was found to vary very little, owing to the heating power of the sun, and at 22,900 feet, was found to be -|- 25°, showing a difference of −35° centrigrade with the temperature of the air.

This result is extremely remarkable, and was observed at several intervals, although the gas ought to suffer a diminution of temperature, owing to its constant dilatation.

Although the air was clear and the sky quite blue, a number of cirrus clouds were seen on the horizon, which could not be seen from the surface of the earth.

As far as can be inferred from the ascertained facts, there was no sensible variation in the directions of the air for an immense altitude. It accounts for the unprecedented beauty of the weather, and the purity of the air; it may be taken as a fair prognostic of the continuance of good weather for at least a few days.

The aeronauts had in their cars maximum barometers in a sealed box, in order to test the altitude in which they were travelling. These tubes, having been saved, will be tested in the laboratory of M. Herve-Mangon.

M. Tissandier was slightly hurt in his fall. Great sympathy has been elicited for Sivel and Croce-Spinelli, who may be said to have spent their lives in the battle-field of the air. Sivel was formerly a captain of the mercantile navy; his age was forty-two years. Croce-Spinelli was a pupil of the Ecole Centrale, and was thirty-two years of age. The former was a widower, and leaves a girl, and the second was a bachelor. A subscription is being contemplated for the fatherless child.*

The *Zenith* is in good order, and will be put in repair. Although marred by a sad tragedy, and although the composition of the air has not been ascertained, as was contemplated, the expedition cannot be said to be devoid of results. It will serve as an incitement to further investigation in the same direction, but with greater caution.

Since the date of our correspondent's letter, it would seem, from the indications shown by the uninjured barometers, that the height reached was actually 14,000 meters, or eight miles.

* Accordimg to the *Times* correspondent, this and other things have been found.

*The *Times* correspondent states that M. Sivel leaves a widow as well as a child, and that M. Spinelli was the sole support of his parents. To quote the words of the correspondent, "The scientific world will doubtless respond liberally to this appeal, for MM Spinelli and Sivel lost their lives, not in gratifying foolhardy curiosity but in endeavoring to penetrate the secrets of the atmosphere for the benefit of science." M. Tissandier's own account of the journey will be found in Monday's *Times*

A WRITER in the same paper, in speaking of accidents from careless and improper use of powder, kerosene, etc., says that "the dangers resulting from the escape of petroleum spirit or its vapor from receptacles in which it is kept, in confined spaces where little or no ventilation exists, has been but too frequently exemplified by explosions more or less violent, followed by fires in localties where it is stored or handled, or in the holds of vessels in which it is transported. Accidents of such kinds have been due either to carelessness in transferring petroleum from one vessel to another, in a shop or store in which a light has been burning at the time, or to a light being carried into or a match struck in a store where vapor has been escaping until it has formed an explosive mixture with the air; and, although improved legislation, and the beneficial regulations thus supplied, may be confidently hoped to effect an important reduction in the number and magnitude of the disasters now recorded as accidental explosions, it would obviously be worse than shortsighted to encourage a reliance upon legislation alone as a safeguard against the evils which lead to casualties of this kind. Punishments inflicted for transgression of the law may engender caution, but the disasters which arise from ignorance are not likely to be importantly reduced in number by legislative enactments alone.

"It is to the general promotion of education among the people, and to the spread of scientific and technical knowledge, if even of the most elementary kind, among employers and employed, that we must look for a substantial diminution of these casualties, which the uneducated mind is but too prone to attribute to accident, and the prevention of which rests, at any rate to a large extent, with those who are at present tacitly content to regard them as inevitable."

ALTHOUGH caverns and grottoes may be hollowed out in rocks of any mineralogical composition, it is chiefly in limestones that such cavities abound. This is due not so much to the ease with which these rocks yield to mechanical agencies as to the readiness with which they give way before the solvent action of ordinary waters. Carbonate of calcium, it is true, is but very slightly soluble in pure water, but pure water is utterly unknown in the economy of nature. Rain-water, in its mere passage through the atmosphere, dissolves more or less of the carbonic acid present in the air, while the water which flows over the surface of the ground readily takes up still more of this gas, evolved as it is from all decaying organic matter as one of the final products of its decomposition. Such water, finding its way into the cracks and crannies which abound in every limestone rock, dissolves the carbonate of calcium to a very appreciable extent, thus widening the channels through which it flows, and eating out for itself new passages along any lines of weakness. The limestone, however, is not only eroded by these acid-laden waters, but is further fretted away by the grinding and scouring action of the silt and pebbles carried along by the flowing stream. Thus, partly by chem-

ical and partly by mechanical action, there are gradually formed those irregular cavities which often open into subterranean vaults of considerable extent. But while the action of running water on a limestone rock is thus destructive in one sense, it is constructive in another. The water having once dissolved the carbonate of calcium, and consequently become, as we commonly call it, "hard," may readily yield up the carbonic acid which retains it in solution, and thus precipitate the calcareous matter in a solid form. It is in this way that the walls, the roof, the floor of a limestone cavern may become decorated with those whimsically-shaped masses of stalactite and stalagmite which give so marked a character to cavern scenery.

PASTE FOR PHOTOGRAPHS.—Paste prepared as follows, is highly recommended by Tunny for photographs: Mix thoroughly 630 grains of the finest Bermuda arrowroot with 375 grains of cold water, in a capsule, with a spoon or brush, then add 10 1-3 ounces more water, and 60 grains of gelatine in fine shreds. Boil, with stirring, for five minutes, or until the liquid becomes clear, and when cold stir in well, 375 grains of alcohol and 5 to 6 drops of pure carbolic acid. Keep in well-closed vessels, and before use, work up a portion carefully with a brush in a dish. It is said to keep for a considerable time.

A PHYSICIAN in Maine has been inquiring into the statistics of infantile narcotism with Winslow's soothing syrup, and states that the sale of this dangerous nostrum annually disseminates 15,000,000 grains of morphia among our nurseries.

THE SECRET OF MAKING glass tough appears really to have been discovered. M. Francois de la Bastie, a French engineer, after years of inquiry, has found that glass heated to a certain temperature, and passed for a moment through a prepared oil, also heated, loses its brittleness, becoming so tough that an 8-oz. iron weight, falling on a thin piece from a distance of four feet, only bounded off. Thin watch-glasses, or plates thrown across a room against a wall, fell spinning on the floor. When, however, the glass does break, it breaks all at once into atoms, and the glazier's diamond makes no impression on it. It can, however, be cut with the wheel, and some simple method of cutting will speedily be devised, when the glass may be used for the commonest as well as the most elaborate purposes. The first use of the new material will, probably, be for stained-glass windows, but there will soon be no end to its application. We are not told whether it will stand great heat, a quality much wanted in lamp chimneys.

THE ROYAL ACADEMY OF MEDICINE, at Brussels, has given its opinion on the so-called "miracle," Louise Lateau, who, it is said, by Divine assistance abstains from taking food, and has done so for years together. Moreover, this miraculous creature has some wounds in her hands, side, and feet, which are said to be true representations of those of Christ, and

which bleed profusely every Friday. Dr. Virchow, the celebrated German anatomist, has made her the subject of a little pamphlet, "Ueber Wunder." The opinion of the Brussels Academy, which is quite in accordance with that of Dr. Virchow, is as follows: "Louise Lateau works and requires heat; every Friday she loses a certain quantity of blood by her wounds. When she breathes, she exhales water, vapor and carbonic acid; her weight has not decreased since she has been observed; she, therefore, consumes carbon, which is not furnished by her system. Where does she take this carbon from? Physiology simply replies, 'She eats.' The alleged abstinence from all food of Louise Lateau is contradictory to all physiological laws; it is, therefore, hardly necessary to prove that this abstinence is an invention. Whoever alleges that Louise Lateau is not subject to physiological laws, must prove it; until this is done, physiology will denote the miracle to be a deception. Could Louise Lateau be closely observed night and day by scientific men, the deception would soon come to light. It is of no use to talk of miracles, even when eleven doors are shut against deceit, as long as the twelfth is left open."

DINGLER'S *Polytech. Journal* contains an account of researches made by Dr. Otto Krause, of Annaberg, on tobacco smoke, which he finds contains constantly a considerable quantity of carbonic oxide. The after-effects of smoking are said to be principally caused by this poisonous gas, as the smoker never can prevent a part of the smoke from descending to the lungs, and thus the poisoning is unavoidable. The author is of opinion that the after-effects are all the more energetic, the more inexperienced the smoker is, and he thus explains the unpleasant results of the first attempts at smoking, which are generally ascribed to nicotine alone.

THE London *Times* of April had a very valuable account of a mode of ventilation adopted by Mr. Tobin, a retired merchant of Leeds, and which rests on the principle that a narrow stream of air can be sent up through lighter air, like a jet of a fountain through the ordinary atmosphere, by atmospheric pressure from outside, and that when it reaches the ceiling it will be reflected off in all directions, just as the water falls back in a number of infinitesimal rills, and so melt away very gradually into the less pure air of the room, before reaching the persons who need it. The *modus operandi* is to introduce vertical tubes, communicating with the outer air, in parts of a large room or public building where people are not likely to sit or stand, tubes rising, say four or five feet, above the floor. Directly the air in the room begins to be rarified, the pressure of the air outside sends streams of air up these tubes, which continue to rise in narrow streams, just like jets of water, and without dispersing till they reach the ceiling, where they are reflected back in spray, as it were, of pure air, spray which mixes very gradually indeed, and so as to avoid all draught, with the rarified air of the room, and gradually expels all the bad air by way of the chimney.

The system seems to have worked almost miraculously in the Leeds Borough Police Court, and also in the Liverpool Police Court.

CLEANING CARPETS.—Put four tablespoonfuls of ammonia to one bucketful of water, with soap, scrubbing brush, and cloth; scrub and wash the carpet just as you would an unpainted floor, changing the water frequently. Leave the windows open, and the carpet will soon dry. In cities where bituminous coal is used, carpets are scrubbed as regularly as wooden floors, and with happy effects. Instead of taking up a carpet every six weeks during the winter, as some in muddy districts think necessary, a careful wiping every week of the carpet with a mop wrung from clean water will remove the dust and brighten the colors. A thorough sweeping should precede this wiping up.

BOXWOOD.—Boxwood, which is almost exclusively used for wood engraving, is becoming more and more scarce. The largest wood comes from the countries bodering on the Black Sea. The quantity exported from Poti direct to England during 1873 amounted to 2,897 tons, of the value of £20,621. Besides this, from 5,000 to 7,000 tons of the finest quality brought from Southern Russia, annually pass through Constantinople. An inferior and smaller kind of wood, supplied from the neighborhood of Samsoun, is also shipped at Constantinople to the extent of about 1,500 tons annually.

THE top of a window should never be more than a foot below the ceiling.

IT is the solemn opinion of *The Chicago Post and Mail* that Dr. Lincoln was merely theorizing when he criticised the ventilation of school-houses, and that what is really needed is to get more children into those homes of learning.

A BELGIAN professor, M. Menetrier, has just published a scientific work in which he declares the weight of the earth to be about 5,000,000,000,000,000,000,000 tons.

DR. WILKES, in his recent work on Physiology, remarks that, "It is estimated that the bones of every adult person require to be fed with lime enough to make a marble mantel every eight months."

ACTION OF BORAX IN FERMENTATION AND PUTREFACTION.—Borax in small quantity arrests fermentation and putrefaction, and prevents the development of low forms of organic life.

THE following apparatus for cooling water, wine, milk, beer, etc., has been patented in Vienna, and is claimed to be the most efficient and convenient, and at the same time, among the cheapest. It consists simply of a tube, most conveniently of tin, with a tight-fitting cover, which is rapidly packed, by aid of a wooden stamper, with pounded ice and salt, either mixed or in alternate layers, and is to be plunged into the liquid that is to be kept cool.

IRON PIPES for water conveyance, are said to destroy all organic impurities in the water which passes through them.

SWELLED veins are not a pleasant topic, but they are so common with shop-girls, who have to stand too long, women who have large families, policeman, and others, that we do no more than our duty in braving the difficulty, and placing the following before our readers :

Dr. Linon, of Verviers, has used perchloride of iron, locally, with great success, during the last three years, in the treatment of varices. The strength of the solution is about two and a half drachms to eight ounces of water. Compresses of flannel are steeped in the water, then wrung out, and applied by means of a flannel bandage, which is only to be moderately tightened. This application is to be kept on twenty-four hours, and on removing it the surgeon is much surprised to find that the venous dilatations have almost entirely disappeared. The applications are to be renewed as above, during seven or eight days successively, after which time the bandage is to be kept on, without any further wetting, till it gets loose. It is then to be wetted again with the solution, and applied until the varices have disappeared, which generally takes place after eight days or a fortnight, according to the size of the swelling. These simple means have removed in a few days enormous varices, accompanied by violent pain, with black spots on the surface, and have restored to the patients the use of their limbs. By the unsuccessful application of dry bandages only, Dr. Linon has been able to show that it is not compression, but really the local action of the iron which is efficacious. The local action of thermal waters containing magnesia on the skin, is similar to that of the perchloride.

HORSES fed on bruised oats, are said to sweat more than is natural, and to lose condition.

A SIMPLE remedy against the "backing up" of foul gases into houses, through the kitchen sink pipe, is the connection of that pipe with the kitchen chimney.

PARENTS should always be extremely careful not to let their children mix with others, too soon after an attack of fever of any kind; this precaution, properly attended to, would soon reduce the number of cases infected.

THE DANUBE IN ITS NEW BED.—The Danube has taken possession of its new bed, which had been prepared for it by the Danube Regulation Commission. It did not do so quite in the way meant by the engineers. The new bed was dug out in three sections, separated from each other by two dykes which were left, and over which the roads led to the old bed. The embankment had been raised all along the line and partially revetted with stone, but there remained still a good deal of the stone revetting to do in the portion between the two dykes. In order to do this more cheaply and expeditiously it was determined to make an opening in the upper dyke, so as to allow the stone barges to pass through. The news excited some misgivings, and there were warning voices which predicted that the lower dyke would scarcely be able to resist the pressure of the water; but the engineers were confident in their power of regulating the inflow of the stream, and to stop up the gap if necessary. Events proved that they had been too confident, for scarcely was the channel opened when the stream rushed in, widening the gap soon from 12 ft. to 100 ft., carrying away the bridge which had been constructed. The dyke being in an oblique direction the gap was towards the right bank, the consequence of which was that

the force of the stream rushed in that direction, carrying away the masonry and stone revetment for a considerable distance.

DEAN STANLEY delivered an eloquent address at Dundee, quite recently, on "Religion, Science and Literature," which he embodied in the study of three contemporaries, or almost contemporaries—Calvin, Galileo and Shakespeare. He treated Calvin as a great theologian of predestination, which he regarded as a strained and extreme form of, but still a form of, the gospel of Providential guidance, and claimed for Calvin, in this matter, no less a disciple amongst modern men of genius than Carlyle. Galileo he treated as the true scientific man, and Shakespeare as the poet whose faith was all the greater for not being confined to any definite creed. The Dean ridiculed the notion that theology would soon perish from off the earth, and declared that its alliance with science and literature must be eternal; and we agree with him. But we do not think with him that Shakespeare, with all his greatness, can ever be held to embody the highest religion. The one characteristic delineation wanting in Shakespeare's work, is that of a mind specifically religious—that is, devoted to the love of God. That his imagination was far too great to be limited to worldly views of the universe is true, but, on the whole, Shakespeare's largeness of mind was surely rather of the worldly than of the religious or devotional type. The Dean, wise and eloquent as he is, always seems to us to sublimate too much the substance of religion in a form of a vague, though beautiful sentiment.—*Saturday Review.*

THE RAGE FOR SEALSKINS.—Some thirty years ago sealskin was common enough. Boxes were covered with it, gloves and driving-rugs were made of it, costermongers and cabmen cut their caps from it. Then came a time when some cunning furrier discovered how to dye it a rich dark brown, and to give it that exquisite soft and downy texture which is its chief charm. At once ladies adopted the luxury. It was soon found that for cloaks, jackets, muffs, dainty little hats, collars cuffs, bags, portemonnaies, for a thousand other articles of feminine use, it became the most delightful, the most beautiful, the most indispensable of all possible materials.

PROF. NEWCOMB, the Secretary of the Transit Commission, has recently expressed the opinion that American observations alone will determine the solar parallex within the fiftieth of a of a second; *i. e.*, that the distance of the sun will be thus ascertained within considerably less than one-fourth of one per cent.

THE Observatory of Paris is to give a series of *soirees* on the first Monday of each month. Instruments will be placed at the disposal of visitors for observing celestial phenomena, and the most important inventions will be exhibited and explained.

Art Miscellany.

PRINCIPLES OF DECORATIVE ART.

Visitors to the South Kensington Museum in London, last year, will remember, among other things which attracted their attention, the very interesting collection of drawings, designs, etc., of the late Owen Jones, the celebrated architect and writer.

The following rules were prepared by him for a series of lectures delivered at Marlborough House, in 1852, and are republished by us because they contain in small compass a great deal of valuable information.

I. The decorative arts arise from, and should properly be attendant upon, architecture.

II. Architecture should be the material expression of the wants, the faculties, and the sentiments of the age in which it is created.

III. Style in architecture is the peculiar form that expression takes under the influence of climate and material at command.

CARPETS.

IV. The surface of a carpet, serving as a ground to support all objects, should be quiet and negative—without strong contrast of either form or color.

V. The leading forms should be so composed as to distribute the pattern over the whole floor, not pronounced either in the direction of breadth or length.

VI. The decorative forms must be flat, without shadow or relief, whether derived from ornament, or direct from flowers or foliage.

VII. In color, the general ground should be negative, low in tone, and inclining to the tertiary hues; the leading forms of the pattern being expressed by the darker secondaries; and the primary colors, or white, if used at all, should be only in small quantities, to enhance the tertiary hues, and to express the geometrical basis that rule the distribution of the form.

VIII. The laws regulating the harmonies and contrasts of colors should be attended to.

PAPER HANGING DISTINCT FROM WALL DECORATIONS.

IX. The decoration of paper hangings bears the same relation to the objects in a room, that a background does to the objects in a picture.

X. It should not, therefore, be such as to invite attention to itself, but be subdued in effect, and without strong

contrasts, either of form, color, or light and dark.

XI. Nothing should be introduced which disturbs the sense of flatness.

XII. All natural objects, therefore, when used as ornament for these manufactures should be rendered flat, and in simple tints.

XIII. While the decorative details should be arranged on systematical bases, these should be so resolved into the minor forms as not to be intrusively prominent.

XIV. Color should be broken over the whole surface so as to give a general negative here rather than masses of positive color.

METAL WORKS, POTTERY, AND PLASTIC FORMS GENERALLY.

XV. The form should be most carefully adapted to use; being studied for elegance and beauty of line, as well as for capacity, strength, mobility, etc.

XVI. In ornamenting the construction, care should be taken to preserve the general form, and to keep the decoration subservient to it, by low relief or otherwise; the ornament should be so arranged as to enhance, by its lines, the symmetry of the original form, and assist its constructive strength.

XVII. If arabasques, or figures in the round, are used decoratively, they should arise out of the other ornamental and constructive forms, and not be merely applied.

XVIII. All projecting parts should have careful consideration, to render them as little liable to injury as is consistent with their purpose.

XIX. It must ever be remembered that repose is required to give value to ornament, which in itself is secondary and not principal.

CALICOES, CAMBRICS, MUSLINS, MOUSSELINE, DELAINES AND OTHER PRINTED GARMENT FABRICS.

XX. The ornament should be flat, without shadows, or the appearance of relief.

XXI. If flowers, foliage, or other natural objects are the motive, they should not lie direct imitations of nature, but ornamentally displayed in obedience to the above rule.

XXII. The ornament should cover the surface, either by a diaper based on some regular geometrical figure, or growing out of itself by graceful flowing curves; any arrangement which carries lines or pronounces figures in the direction of breadth is to be avoided, and the effect produced by the folding of the stuff should be carefully studied.

XXIII. The size of the pattern should be regulated by the material for which the design is intended, small for close, thick fabrics, such as Ginghams, etc., larger for fabrics of more open textures, such as Muslins, Barèges, etc., largely covering the ground on Delaines, and more dispersed in cotton or linen goods.

THE SUCCESS which has attended the study of drawing, in the Boston schools, has been largely due to the earnestness and faithfulness with which the ordinary teachers carried

out the plans of the State Director and the committee, having the matter in charge.

Most of these teachers attended, with commendable regularity, the Normal Drawing Classes, held during the Winter, and were able to pass the not very rigorous examinations in the Spring.

Where opportunity has been offered to make comparison between the work of those who have attended these lectures, and those who have not, the result has been so marked, in favor of the former, as to attract the attention of the Boston Board of Education, who, at the present time, make the capacity to teach drawing, a necessary qualification of all teachers now appointed.

Primary teachers are required to take instructions, so as to qualify themselves to teach the elements of free-hand outline drawing, memory and dictation drawing, geometrical drawing, model drawing, and the Grammar and High School teachers must add perspective drawing to the list.

Considerable interest in this study is manifested by many teachers in the Brooklyn schools; but no uniformity of instruction exists, and this defect alone tends to neutralize the power of much good work that is done.

There is a strong desire to establish such uniformity, and to arrange some plan by which the teachers may be induced to pursue a course similar to that in Boston. It is the only proper way, and we hope to see it adopted *some day*.

THE LATE JOHN LEECH, of London, had a marvelous aptitude for drawing, as any one familiar with his contributions to *Punch* will remember. Of this talent, Ruskin says: "The first few lines in which he sets down his purpose are invariably, of all drawing that I know, the most wonderful in their accurate felicity and prosperous haste." He reckons Leech "an absolute master of the elements of character, but not by any means of *chiaroscuro*, and expend his highest encomium on the flexibility and lightness of pencilling," to which, he says, "nothing but the best outlines of Italian masters, with the silver point, can be compared."

THE ACT relating to free instruction in drawing, a copy of which we printed in our last number, having passed both branches of the Legislature, and received the signature of the Governor, is now a law of this State.

While its provisions are crude and imperfect in important particulars, there is much good to be derived from it, under judicious and sympathetic direction. We earnestly commend the subject to the attention of the State Teachers' Association, which meets in July, and urge them to appoint a suitable committee to arrange, as far as it may be possible for them to do so, for the uniform introduction of drawing in the schools specially referred to in the act; agree as to methods, (there is but one, the right one), provide for the keeping of statistics, and be prepared next Winter to suggest desirable amendments to the law.

Drawing ranks among the necessary studies in industrial life, and its intelligent pursuit will, in ten years, have as much effect, for good, on the young

of both sexes, as it has in Massachusetts.

We can assure the State Association that they will do well to take the matter in hand.

We heartily congratulate Messrs. Miller and Lowery for their success in carrying the bill to a successful issue. They will never regret having done so.

PICTURE SALES have been plentiful during the last sixty days in New York, following the order of things in London and Paris, where the affairs of this character are regularly looked for each Spring.

There, however, some pretense is made to provide reputable collections and to properly represent the artists, who, at best, are the ones who profit least by this class of transactions. In this country, a lot of pictures are huddled together, generally, by third-rate speculators, who do not hesitate to present to the public anything in their possession which they think they can dispose of, at a profit.

We recently saw a picture—the boldest attempt at imitation and forgery of Diaz—placed on the easel, for sale as an original.

The picture was about 18x24, at least, and would have been worth about $1,000, and it was bid off—after repeated efforts to foist it upon some innocent at a high price—for less than $100, to serve on some other occasion to dupe people.

Clarence Cook's recent exposure of similar intent at fraud is well known. It was a conspicuous case, and only one of many which are constantly being practiced in this country. The fault is mainly with us in encouraging anything but absolute sincerity in all matters of this kind, and in pretending to exercise a judgment and taste on such occasions, which rightly, in many instances, subjects us to ridicule.

THE ERA of flashy and gaudy colors in household decorations, is passed. Strong contrasts in form or color, and conspicuous figures and patterns in carpets, window-hangings, etc., are to be done away with. This will naturally lead to the use of more quiet colors and neater designs, both harmonious and pleasing to refined taste. The influence of forms, designs and colors used in furniture, house trimmings, etc., is very powerful in directing the choice, and educating the tastes of the people. The best artists in design and skill in manufacture, should, therefore, be brought into requisition, for all household material.

THE Spring Exhibition of the Brooklyn Art Association, opened on the 10th of May, and continued through the month.

The object of this Association, as we understand it, is to encourage art taste among the people, by collecting, once or twice a year, a number of reputable pictures for public exhibition—a laudable purpose, which, however, but partially accomplishes the work which an exhibition of this character should do.

There is little effort, on the part of artists, to paint good works for this exhibition, as it has, somehow, come to be understood, that most any kind of pictures will be accepted.

Let the Association determine upon a more positive policy, and maintain it. Brooklyn artists are represented in the following list, but there are few pictures that commend special notice:

16. Abbe d'Villers, by Thomas W. Marshall.
39. Passing Shower, by M. F. H. De Haas.
64. Evening on the East River, by C. T. Lippitt.
66. Portrait, by J. C. Platt.
67. The Old Mill, by J. C. Platt.
74. The Kitten's Breakfast, by Percival DeLuce.
75. Portrait, by Philip S. Harris.
76. Portrait, by Philip S. Harris.
89. "The pangs of memory of ills, keeps dripping before the heart," by Marshal Oliver.
92. Black Hills, by J. M. Loretz, Jr.
100. Christmas Eve, by Thomas Jensen.
102. Old Livingston Sawmill, St. Albans, Vt., by Dollie M. Williamson.
130. Indian Pass, Adirondacks, by J. C. Wiggins.
134. Among the Flowers, by Rufus Wright.
135. Portrait, by Rufus Wright.
136. Portrait, by Rufus Wright.
146. Basket of Flowers, by Mrs. James M. Hart.
165. Portrait, by Georgia Douglass.
169. The Old Fence, by Julie H. Beers.
170. The Lady of the Woods, by Julie H. Beers.
171. The Rock Fernery, by Julie H. Beers.
188. Sunset, Coast of Maine, by M. F. H. De Haas.
223. Winter in the Adirondacks, by James M. Hart.
246. "'Ere's Fourth Edishun," by J. M. Falconer.
252. "Golly! Dis old harness need fixin' shuah!" by C. C. Markham.
253. A New England Dame, by C. C. Markham.
254. Head of an Italian Girl, by George O. Annable.
255. The Old Tunes that Grandpa Marched by in '76, by George O. Annable.
256. Italian Shepherd Boy, by George O. Annable.
257. Dressing the Baby, by George O. Annable.
269. Rocky Mountain Lake, by G. D. Brewerton.
270. Bitter Cold, Winter among the Catskills, by G. D. Brewerton.
309. Hill Side, by William Hepburn.
310. Portrait, by William Hepburn.
323. Portrait, by Ferd. T. Boyle.
325. The Golden Hour, by William Hart.
343. "Rocks on the California Coast," by G. D. Brewerton.
344. "A South Carolina Dragoon," by G. D. Brewerton.
351. Landscape, by J. C. Wiggins.
362. Autumn Leaves, by Mrs. A. N. Littlejohn.
363. Baths of Lucca, Italy, by Mrs. A. N. Littlejohn.
366. March, 1875, by J. M. Falconer.
371. Group of Children, by Augustus Young.

Several works, by members of the Brooklyn Pallette Club, are worthy of mention, as embodying good work of amateurs, under the careful training of Rufus Wright.

The work of the schools, this year, is also less representative of hard study, than heretofore.

A STUDIO ANECDOTE.

Some painters like red sunsets. So,
At least, did one I used to know;
He, certes, made them hotter
By ten degrees than most (his boast);—
We called him "Flaming" Potter.

Thereby hung divers studio tales—
'Mongst others, this: One day, in Wales,
Our friend had just completed
The reddest thing he'd done in sun,
And, feeling somewhat heated

(By his own work, no doubt), to cool,
Plunged headlong in the silent pool
He sat by. Soon some cattle
Came slowly down the brink to drink;
Forthwith a furious battle

Ensued between the Bull that led
And hapless Potter's canvas red,
Till, after dreadful slaughter
(Of paint and brushes), tramp and stamp,
His sun set—in the water.

He hid, of course. But later on,
When chough and crow to roost had gone,
Some passers-by detected
A lonely man and sad, half-clad
(And mad, they all suspected),

Who, near an antique oak tree's root,
Seemed fishing for what looked a boot,
While all the pool was coated
With some strange hideous soil like oil,
In which dim objects floated.

MODELLING IN CLAY is now taught in the Art School of the Maryland Institute. A class in book-keeping for women was formed and conducted successfully last Winter.

"WE FEAR that it will strike terror into the heart of many a worthy man to hear that no less than 1,500 pictures were rejected by the Selecting Committee of the Royal Academy on the very first day of examining the works sent in."

MR. GLADSTONE'S collection of china, pictures, and other works of art will be sold at Christie's on Wednesday, June 23d, and three following days. It will doubtless be one of the most important and interesting sales of the season.

A SENSATION PICTURE by Gabriel Max is on view at the French Gallery, Pall-mall. It is the head of Christ. The eyes seem closed, but a few paces off our Saviour's eyes seem fixed on you, and you never after get a look at them closed. It it very curious.

A BLOCK OF GRANITE, which is to serve as a monument to Professor Agassiz, has arrived in Cambridge, Massachusetts. It was taken near the lower glacier of the Aar, in Switzerland, where Professor Agassiz made explorations, and will be placed over his grave in Mount Auburn Cemetery, in the Spring, without material alteration other than the cutting of an inscription.

SUMNER.—Ten models of statues of the proposed Sumner memorial in Boston, have been sent on to that city, and at least as many more are on the way. After a selection by the Committee, the models will be exhibited in that city and possibly in New York.

THE SCULPTOR'S SYMBOLS.

Clay—Life.
Plaster—Death.
Marble—Resurrection.

FOLLOWING the good example of the Empress of Japan, who recently gave 5,000 yen toward the establishment of a training-school for female teachers, Iyo, the former diamia of Matsuyama, has contributed 1,000 yen toward the support of schools in Tokio, and a like sum in aid of those in the Yehime-ken, the seat of his former dominions. In July last, the same noble sent 2,000 yen for similar purposes to the School Trustees of his native ken.

CHARLES ELIOT NORTON, A. M., has been confirmed as Professor of the History of Art at Harvard.

A LONDON CORRESPONDENT writes of the Royal Academy: "The Royal Academy opened to-day, with its usual abundance of pictures and scarcity of art. 'Never so many bad pictures on the line,' 'The worst exhibition for many years,' is the common verdict of competent critics. The atmosphere of London in recent years has apparently become fatally enervating to the artistic spirit. As the patrons, so will the artists be, and the competition now is who shall be the most startling and extravagant. The consequence is that there is a carelessness in most of the pictures which is very remote from the temper of pure art. Except for a few portraits, and a landscape or two, there is nothing very good in this year's show. Miss Elizabeth Thompson's picture of 'Quatre Bras' supplies

a significant commentary on the ridiculously exaggerated applause with which an ignorant and snobbish public followed the boyish transports of the Prince of Wales."

THE NATIONAL ACADEMY OF DESIGN.—The annual meeting of the members of the National Academy of Design has been held, and the following officers were elected: Council—W. Whittridge, President; Eastman Johnson, Vice-President; E. D. E. Green, Treasurer; T. Addison Richards, Corresponding Secretary; Alfred Jones, Recording Secretary, and Jervis McEntee, D. Huntington, Thos. Hicks, S. G. Guy, T. W. Wood, J. G. Brown. Academecians—A. W. Thompson, J. B. Bristol, Charles H. Miller; Associates—George H. Storey, Edgar M. Ward; Hanging Committee—L. E. Wilmarth, W. L. Sonntag, George C. Lambdin. At the conclusion of the meeting the members partook of their annual dinner.

THE PARIS SALON will contain 4,300 works this year, inclusive of statuary, exceeding the number exhibited last year by 800. Of these, 2,000 have been sent by artists who have the right of exhibiting, and the remainder have been selected by the jury, who had no fewer than 7,000 works before them for examination.

IT IS strange that the rich material that lies ready to the eyes and hands of artists in our great modern iron-works, has not been more often seized upon for the making of pictures. Every one who has seen the processes of smelting and forging iron, cannot fail to have been struck with the many picturesque effects that they yield, effects such as Rembrandt delighted in—of glowing light in surrounding darkness, of mystic beams and strange shadows casting a spell of beauty upon the most commonplace objects.

MODERN ANTIQUES.—Most people have been accustomed to hear that the field of Waterloo is regularly planted with old swords, bullets and accoutrements in the early Spring, in order that the crop of relics may be duly ripe, and properly rusty for Autumn tourists; and it is said that there is a manufactory in England to supply the Egyptian gods, which are sold to travellers at the foot of the Pyramids. But we imagine it will cause a thrill of horror to pass through the minds of modern china-maniacs, when they hear that there is an establishment somewhere in Staffordshire, where Worcester, Dresden, Chelsea, and every description of ware in high esteem amongst collectors are being imitated, and well-known marks cleverly forged. One is not at all surprised to hear this. It is sure to be the case whenever the demand exceeds the supply. Purchasers of any articles you may please to name, will always be supplied as long as they are able to pay, and when the supply of the genuine article becomes short, there will be sold an adulteration—when the real thing has been entirely bought up, they will have to give an exorbitant price for a sham one. When the pictures of a certain painter become the rage—and there is, after all, quite as much fashion in such matters as in dress—there

are cunning craftsmen who can supply any number you like of the works of the artist, at any period of his career you may wish to select. It has been said that no great painter, had he lived four times his natural life, could have painted all the pictures attributed to him, and it seems to be pretty clear that the workmen of past times must have worked very much harder than those of the present, if they turned out half the chairs, tables, cabinets, looking-glasses and tapestry which the world calls ancient. A clever expert may be able to detect imposition in these last-named articles, but in the matter of china it is far more difficult, especially when we understand that some of these latest Staffordshire manufactures are cunning enough to deceive the cleverest *connoisseurs*.

THE ART SCHOOLS of the Academy of Design have generally attracted less attention than their merit deserves. The exhibition of drawings, which has been open some time, is to culminate in the distribution of prizes, awarded by the Council and to be conferred by the President of the Academy.

THE busts of John G. Whittier and the late Prof. Agassiz, by Preston Powers, are now on exhibition in Boston. They were modeled by Mr. Powers during his visit to that city last November, and taken to Florence, where they were cut in Carrara marble of spotless whiteness. As portraits they are said to be faithful and characteristic, while in their mechanical execution they are remarkable for elaborate and delicate finish. The busts were cut in marble by the same artisan who reproduced Hiram Power's Greek Slave, and who is considered the most skillful workman of his class in Florence. The bust of Agassiz is undraped, but that of the Quaker poet represents him in the costume of the religious sect of which he is an active member. The latter was ordered by C. H. Brainard, who intends placing it in the Museum of Fine Arts.

THE Administration of the Fine Arts has just ordered four ceilings for the decoration of the Louvre. The first representing "The Glory of Mary de Medicis," is to be executed by M. Carolus Doran; the second, "The Glory of French Sculpture," by M. Tony-Robert-Fleury; the third, "The Glory of Rubens and of Painting," by M. Giacomotti; the fourth, "The Glory of Jacques de Brosses and of French Architecture," by M. Jule Lefevre.—*Paris Journal.*

"THE present Exhibition of the Institute of Painters in Water Colors, in England, is a disappointing one. During the last few years we have noticed considerable progress—progress both artistic and intellectual, and a finer taste; but on this occasion the faults which used to characterize the annual gatherings of the Institute are again obvious. Meretricious art has always abounded in the Institute—flimsy, commonplace, and trivial design and painting have formed the staple of the display."

THE death is announced of M. Casimir de Balthasar, the painter, a pupil of Paul Delaroche. His principal works were *Joan of Arc in prison*, *Phillippe de Valois* after his defeat at Crécy, and the *Death of Lara*.

CURIOUS EARLY WOODCUTS.—Among the prints recently acquired by the British Museum from the Howard Collection is a large and curious early woodcut of a man-of-war of the time of Queen Elizabeth. This print, we are told, is interesting from its being probably the work of an English engraver. No other impression of it is known. It is printed with three blocks, and gives a broadside view of a ship full rigged, with aftermast, foresail, and mainsail, and hanging over the side, a large standard quartered with the arms of the Howard family. This makes it probable that the ship represented was the Ark Royal, the largest ship in Queen Elizabeth's fleet at the time of the Armada, and the flag-ship of Lord Howard, of Effingham.

DEATH OF STEVENS, THE SCULPTOR.—Mr. Stevens, sculptor of the unfinished monument to Wellington, in St. Paul's Cathedral, died last week. It was the similarity of name and profession which led to the erroneous announcement here in the daily papers in April of the death of Edward Bowring Stephens, A. R. A.

MR. WILLIAM M. HUNT has returned to Boston from Mexico. Mr. Hunt's little club of artists has just held its Spring exhibition, to which he contributed three or four female heads—the most remarkable of which was one called "Priscilla"—and several landscape sketches.

THE celebrated painting, "Venus and Adonis," by Prudhon, which was recently sold by auction in Paris for $13,350, is said to have been purchased by Sir Richard Wallace.

FOLEY'S statue of Grattan was successfully cast in bronze last week at the foundry of Messrs. Masefield. It is to be erected in Dublin.

MANY of the drawings executed by artists who have been dead more than ten years have been added to the collections in the Louvre. Four drawings by Delacroix, a large water-color drawing by Decamps, and two designs by Rude, have been exhibited in the Salle des Miniatures. Near to these are placed some of the studies executed by Heine for his picture of "The Distribution of Awards."

EXHIBITION OF TAPESTRIES AT MADRID.—The collection of upwards of 1,000 tapestries of different kinds which exists at the Royal Palace of Madrid may be considered the most important in Europe. The oldest specimens are those which belonged to Ferdinand and Isabella, Philip *le bel*, and the Emperor Charles V; after these, those of the other Spanish kings of the House of Austria, and the Spanish Bourbons, and ending by those which were copied from the cartoons of Goya and others at the carpet manufactory founded by Charles III, which still exists at Madrid.

THE friends and admirers of the famed Belgian composer and violinist, M. Vieuxtemps, who is disabled from future playing by paralysis of one arm, will be glad to learn that the cross of the Legion of Honor has been conferred upon him by the French Government.

GOULD'S statue of John A. Andrew is to be placed over the grave of the War Governor at Hingham in August.

Educational and General Miscellany.

Brooklyn is to be congratulated, and especially those charged with the administration of public education, upon the return of James Cruikshank, LL.D., to the ranks of its teachers.

Mr. Cruikshank has been invited by the Local Committee of Public School No. 12, and has consented to take charge of the school, in its new and beautiful building in Adelphi street, to be opened on the first of June.

Of his former association with our schools, and the invaluable services rendered by him as Associate Superintendent, it is unnecessary for us to speak.

His long and intimate connection with them and with the general educational interest of the State, his relations with the State and national organizations, of which he is one of the most efficient members, justify the belief that No. 12 will soon take rank among the model schools of the day.

We commend the Local Committee, and, notably, Mr. Ammerman, the Chairman, for culminating, in Mr. Cruikshank's selection, a period of devoted labor, during which, the interests of the city, and the welfare of the people of the district, have been paramountly kept in view.

The season of trial is at hand, when the necessities of the law compel the public educators to seek, through unsympathizing channels, the means for carrying on the public schools for the ensuing year. As a consequence, school interests are among the first subordinated to those where personal and political influences are involved, and the first subjected to the cutting-down process. This may be necessary, but it should be done in consultation with those best qualified to judge as to where it is best to make reduction, and certain sums should not be lopped off to make way for some other expenditure, the value and usefulness of which is in no wise to be compared with that of public education.

THE COQUETTE.

BY JOHN HOWARD PAYNE.

An unpublished Poem from Harrison's Life of John Howard Payne.

Oh, tell me, sweet girl, ere we part,
If your recent reproofs were sincere;
If that anger arose from the heart,
Which glowed in those glances severe?

Did you mean, love, when lately we met,
In earnest to frown thus and fly me?
Or, acting for once the *Coquette*,
Did you counterfeit rage, but to try me?

Come! kiss and make up, ere we part,
And, dearest, I'll strive to amend!
For deprived of my home in your heart,
Where again shall I find such a friend?

THE NINETY AND NINE.

AS SUNG BY MR. SANKEY IN LONDON.

There was ninety and nine that safely lay
In the shelter of the fold,
But one was out on the hills away,
Far off from the gates of gold—
Away on the mountains wild and bare,
Away from the tender Shepherd's care.

"Lord, thou hast here thy ninety and nine;
Are they not enough for thee?"
But the Shepherd made answer: "This of mine
Has wandered away from me;
And although the road be rough and steep,
I go to the desert to find my sheep."

But none of the ransomed ever knew
How deep were the waters crossed;
Nor how dark was the night that the Lord passed through
Ere he found his sheep that was lost.
Out in the desert he heard its cry—
Sick and helpless, and ready to die.

"Lord, whence are those blood-drops all the way,
That mark out the mountain's track?"
"They were shed for one who had gone astray
Ere the shepherd could bring him back."
"Lord, whence are thy hands so rent and torn?"
"They are pierced to-night by many a thorn."

And all thro' the mountains, thunder-riven,
And up from the rocky steep,
There rose a cry to the gate of heaven,
"Rejoice! I have found my sheep!"
And the angels echoed around the throne,
"Rejoice, for the Lord brings back his own!"

THE *Pall Mall Budget* says that "English literature is no longer neglected in our public-school teaching, and the variety of hand-books and text-books published for the use of students affords good evidence that the great writers of England are obtaining the place they merit in all schemes of education. Twenty years ago, many a young man passed through his school and college course in almost total ignorance of the literary treasures bequeathed by English authors. If he had read some of our most popular works—the plays of Shakespeare, the novels of Scott, the poems of Byron—he probably knew nothing of the history of our literature and could not have passed an examination of the simplest kind in Elizabethan literature or in the literature of the Queen Anne men. Gross ignorance like this is now, happily, impossible, and the examination papers of our public schools show that at least a great effort is being made to cultivate this branch of education. The subject, being comparatively a new one, is not always taught by competent teachers. Among the numerous handbooks of English literature that have appeared of late years, a few compress within reasonable compass the acquisitions of a life-time, and are worthy of the highest praise. We could point also to several text-books, the editors of which display a masterly grasp of their subject; and there are few students—we had almost said few men of letters—who are not indebted to the comprehensive knowledge and accurate scholarship displayed in some of these works. On the other hand, many of the books which profess to guide a student will only lead him wrong. They are both defective in judgment, in taste, and in exact knowledge, and appear to be the work of men who have attempted

the study of our literature in order to write about it, with no special acquaintance with their theme before they began to write."

THE Russian Government is growing alive to the necessity of extending the advantages of education to the masses, which form so large a percentage of the population of the great northern empire. Fifteen years ago, out of every hundred recruits levied for the Russian army, only two were able to read and write—a state of things which has since undergone material improvement, the returns of 1872 showing that, instead of two, as many as twelve recruits in the hundred had successfully mastered these rudiments of knowledge. The educational deficiencies of Russia are, however, strikingly apparent when placed in contrast with the condition of things prevailing in the neighboring German Empire, where the proportion of army recruits who are able to read and write, is eight times as many as in Russia, or 96 in the hundred.

It has been recently determined that compulsory and gratuitous education is to be the rule throughout the Russian Empire, but only when the various parishes or district assemblies declare in favor of it, which they are scarcely likely to do if it is the intention to levy local rates to defray the cost of the general enlightenment. According to the returns quoted by Herr von Lengenfeldt, whose recent work supplies us with a considerable amount of information respecting the educational institutions of Russia, there are only 24,000 national schools, educating 875,000 pupils, in the whole of European Russia, which is at the rate of one school for every 3,100 among the population. The cost to the State of maintaining these establishments, is set down at 3,415,188 roubles, or less than $3,500,000.

THE PRIMROSE.

A sweet little Primrose has bloomed since last night,
Unfolding its charms at the first ray of light;
A tear-drop just rests on its bosom so fair:
Methinks 'tis because it is all alone there!
The sun with its warmth will soon dry such tears,
And bring some companions to chase away fears.
Ah! dear little flower, thou'rt welcome to me,
I've watched for thee daily, thy blooming to see;
And now thou hast shown thy bright, innocent face,
Thou'lt not remain long, but to others give place.
And why should we sigh at things fleeting away,
That do their own duty as long as they stay?
I speak now of mortals, as well as of flowers—
These give us pure pleasures, the *duties* are ours.

IF you love others, they will love you. If you speak kindly to them, they will speak kindly to you. Love is repaid with love, and hatred with hatred. Would you hear a sweet and pleasing echo, speak sweetly and pleasantly yourself.

It is the mark of a noble nature to be quick to recognize that which is praiseworthy in others, and ready on the moment to award to it its fitting meed. Such a nature looks for that which is good in men; sees it, encourages it, and gives it the strength of its indorsement.

THE Government are about to make a further trial of the clerical capacities of ladies by establishing a number of female clerkships in the Post Office Savings Bank. The limits of age are 16 to 30, and the scale of salary as follows:—Second class, £40, rising by £7, 10*s.* yearly to £75; first class, £80, rising by £7, 10*s.* yearly to £100; principal clerks, £110, rising by £10 yearly to £150.

THE Duke of Argyll is said to be engaged on a work which will shortly appear under the title of "Law and Theology."

THE London School Board is now very much exercised over the question of additional primary school accommodations.

IMPERFECT and defective ventilation also occasions discussion, and a remedy is earnestly sought after.

MR. THOS. W. FIELD, the Superintendent of Public Instruction for the city of Brooklyn, has recently disposed of a valuable collection of Americana and books devoted to Indian history, which made up the greater part of a large library. The catalogue itself is a very valuable book of reference, and is handsomely printed and bound. We hope that these books will remain in the country, although the chances are that many of them will go across the water, to swell and complete collections abroad, already more complete and extensive than any in our own country.

BOIL IT DOWN.—The author of the following poem "recently sent to the *Tribune* a correct version," of which this is a copy. Local poets please read and preserve it.

BOIL IT DOWN.

Whatever you have to say, my friend,
Whether witty, or grave, or gay,
Condense as much as ever you can,
And say it the readiest way;
And whether you write of rural affairs,
Or of matters and things in town,
Just take a word of friendly advice—
Boil it down.

For if you go spluttering over a page
When a couple of lines would do,
Your butter is spread so much, you see,
That the bread looks plainly through;
So, when you have a story to tell,
And would like a little renown,
To make quite sure of your wish, my friend,
Boil it down.

When writing an article for the press,
Whether prose or verse, just try
To settle your thoughts in the fewest words,
And let them be crisp and dry;
And when it is finished, and you suppose
It is done exactly brown,
Just look it over again, and then
Boil it down.

For editors do not like to print
An article lazily long,
And the general reader does not care
For a couple of yards of song;
So gather your wits in the smallest space,
If you want a little renown,
And every time you write, my friend,
Boil it down.

THEY have had in Hartford the spelling-match mania, to the extent of drawing in several of its leading citizens. Judge Carpenter, of the Supreme Court, went down on his first word, spelling gizzard with one "z," being caught by the spelling of "liz-

ard" and "wizard," the two words put out immediately preceding. Gen. Hawley gave up on trisyllable, though the word was incorrectly pronounced tris yllable when given out. Mark Twain left his base on "chaldron"—spelling it "cauldron," which is really the common way.

LITERARY GOSSIP.—Every historical student will be glad to hear that the English Government, through the Public Record Office, now employs an agent in Rome to collect materials for English history from the secret archives of the Vatican. When the request was first made to the Pope to permit the investigation, His Holiness liberally promised every assistance in his power; but official obstacles were thrown in the way which prevented the realization of the scheme. These hindrances have been effectually removed by the zealous exertion made by Cardinal Manning on his recent visit to Rome, and thus Protestant England owes a privilege never before enjoyed by any nation to a Roman Catholic dignitary.

THE Massachusetts school fund now amounts to $2,500,000. The finest buildings in Massachusetts are school-houses.

CHANCE.— While ten men watch for chances, one man takes chances; while ten men wait for something to turn up, one turns something up; so while ten fall, one succeeds, and is called a man of luck—the favorite of fortune. There is no luck like pluck, and fortune most favors those who are most indifferent to fortune.

THE Michigan Legislature has passed a bill abolishing county superintendents of schools, and providing for the restoration of town superintendents.

LYMAN.—Mrs. Laura B. Lyman, the new President of the Brooklyn Women's Physiological Society, is a writer on the *Tribune*, and the widow of the former agricultural editor of that paper.

THE Legislature of California has passed a law forbidding the making of any difference in the salaries of teachers on account of sex. The salaries paid teachers of the same grade must be equal.

MR. BRYANT turns an epigram as neatly still as if he was but 30. Here is his excuse to *The Echo*, the little journal of the Homeopathic Fair, for not furnishing the poem it had claimed ·

I gave my word, dear madam, it is true,
At your request to write a verse or two:
I gave it you as frankly as 'twas sought,
And now you chide because I keep it not.
Talk not of honor—I am honor's slave;
None but a rogue would keep the thing he gave.

"THOSE who desire to see women employed in other occupations than those that are now open to them, will be interested in learning that the handsome edition of Poe's works, just issued by Messrs. A. & C. Black, is printed from types set up by the young women whom Messrs. Clark have, since the strike of the Edinburgh printers, been training as compositors."

THE existence of antagonism in the London School Board is attributed, by the London *Times*, to Mr. Forster's "vexatious bungling with the Educational Act." It says: "A wiser and honester statesman would have seen that no agency short of School Boards in each district, armed with compulsory powers to enforce the attendance of children, could bring English education to anything like the standard attained in Prussia, Switzerland, or the New England States of America, or to the average of education in Scotch towns and villages."

EVENING SCHOOLS of industrial drawing are recommended by the Milwaukee Board of Education.

THERE are about 4,000 public schools in Japan. In 1874, four new normal schools were established, making six in all. So hard is it to get rid of old customs, however, that in some of the public schools, pupils are compelled to learn, theoretically, of course, the proper method of performing *hari-kari*, or the happy dispatch.

PROFESSOR WHITE, President of Cornell University, urges the passage of an act providing for free instruction in drawing. He says: "The idea which multitudes of narrow-minded men have, that education shall stop just at the point where it turns out men unfitted to do anything save to live by their wits, but with no fitness for engaging in any industrial work whatever, has cost this country very dear already, and will lead to misfortunes in the future, unless better ideas prevail."

THE Sub-Committee of the Boston School Committee, appointed to appear before the Legislative Committee which has the bill relating to the Committee in charge, propose a plan for a Board of Education consisting of twenty-four members, with a term of service of three years, one-third being elected annually, they to elect a Superintendent and a Board of not more than six Supervisors, to neither of which positions a member of the Board or either branch of the City Council shall be eligible.

We understand that this change has been made.

THE Vienna University has 3,615 students, and the University of Berlin had last term, 2,980.

WE are asked for a translation of the little poem by V. Hugo, in the last number. Here it is:

THE BABE.

Dream on, sweet babe,
Sleep sweet, my love,
Thy young soul knows not
Where flows its life.
As drifts the sea-weed,
So drift thy days.
The tide doth bear thee
And thou sleepest still.

SUPERINTENDENT B. G. NORTHROP, of New Haven, thinks that there is a deficiency in the teaching of the English language in our schools, the text-books not being well adapted to it.

THE income of Oxford last year was $2,000,000; of Cambridge $1,500,000.

MR. WHITTIER says all the recent attempts made to invalidate the story of Barbara Freitchie as related in his poem come from dissatisfied persons to whom a remembrance of the occurrance is distasteful. He declares his belief in the verity of the act to be as perfect and unshaken as on the day in which he first formed it. His faith in the story is founded, not only on the testimony of friends who had learned the disputed facts in the city of Frederick, but by confirmatory and unsolicited evidence from numerous persons in the South.

RESURGAM.

The bones of Winter whiten on the hills,
A warm south breeze the pink-tipped coppice fills,
The trout leaps shyly 'neath the bank, and—hark!
Melodious, as of old, trills yonder lark;
Pert rooks responsive caw; while round their dams
On slopy hill, for gladness race the lambs;
A gentle shower drops down from heaven's deep blue,
A softer murmur steals the hazels through;
The first pale primrose glimmers 'neath the thorn,
From half-hid violets faintly scents are borne;
Th' uncurling fern frost's last strong fetter breaks,
From her long sleep the bright-eyed Spring awakes.

—*Chambers' Journal.*

MR. MCCULLOUGH, in his letter to the *Tribune*, says, in speaking of the economical habits and skill in cookery of the French people, that "a French village of a thousand inhabitants could be supported luxuriously on the waste of one of our large American hotels." The remark was not far from the truth. If the art of cookery were understood and practised in the United States as it is in France, if our people knew as well how to make the most of their provisions as the French do, the cost of living, as far as food is regarded, in most of the States would be reduced more than 50 per cent. Domestic economy, as a rule, is neither practised nor understood by Americans, as it is in France. It may not be too much to say that the entire population of France could be supported on food which is literally wasted in the United States, and that the French are not only an economical and hoarding people, but they are exceptionally industrious. In the manufacturing, as well as in the agricultural districts, all the members of the families of the industrial classes, young and old, have some employment by which money is earned. Their separate earnings may be small, but all contribute something to the common fund, so that the end of the year finds the family reserve larger than it was at the beginning.

They are eminently skillful and tasteful. The raw materials, which are the basis of articles of taste and elegance, acquire in the hands of French artisans, greater value than in the hands of the artisans of any other nation. The manufactures of France are varied and extensive, and being uninterrupted by "strikes," her capacity to produce seems to be almost unlimited. French goods are found among all nations, and there is a constantly increasing demand for them at remunerative prices. In everything appertaining to personal adornment, France leads the world. The palm may be yielded reluctantly, but all nations do admit the superiority of French taste and of French manufactures in all matter of dress.

School Board and Society Transactions.

THE BROOKLYN BOARD OF EDUCATION.

The regular monthly meeting of this Board was held at their rooms in Red Hook lane, on Tuesday, May 4th, at 4 P. M.

Mr. E. J. Whitlock, President, in the chair; the following members absent:

A. B. Baylis, J. Burger, L. V. D. Hardenbergh, J. Hall, W. W. Hurlbut, T. Kinsella, E. Rowe, G. H. Smith.

The minutes of the previous meeting were read and approved.

A communication from R. J. Bester & Co., suggesting an additional form of making contracts, and thus protecting parties having business with the Board, was referred to the Law Committee.

A communication from Jamor, Jacobs & Co., asking the return of materials valued at $203.88 furnished to school No. 2, was, on motion of Mr. Cunningham, laid on the table.

NEW BOOKS.

A communication was received from Messrs. Ivison, Blakeman, Taylor & Co., asking to have the following named books added to the list of supplies:

The Geological Story Briefly Told, and the Text Book of Geology, by J. D. Dana, LL. D., Robinson's Shorter Course, including the first book in arithmetic and the complete arithmetic.

The communication was referred to the Book Committee.

Notices were received of liens on several of the school buildings against the contractors who had been employed to build or repair them.

On motion of Mr. A. B. Martin, they were referred to the Law Committee.

A NEW DEPOT.

The President said: This morning I received from the agents of the owners of the Smith property a definite and final offer for the sale of that property to the Board of Education for educational purposes, and they have now fixed the sum at the last offer made for it, namely, $50,000.

The President in view of the fact that the money, if appropriated, could not be obtained before the 1st of next January, moved that a special committee communicate with the Common Council, for the purpose of obtaining authority to purchase the building immediately.

Mr. Thomas embodied the above suggestion in his resolution, and, as amended, it was then adopted.

The Special Committee consists of the President, Mr. Murphy, the Vice-President, and Mr. Thomas, Chairman of the School House Committee.

Mr. Garret Bergen moved that that amount be placed in the budget for the purpose of purchasing the property.

Mr. Thomas offered the following substitute:

Resolved, That the Law Committee be and are hereby empowered to purchase the building on Smith street, lately occupied as the residence of the Hon. Samuel Smith, for a hall and depot for the meetings and offices of the Board—the price of the same not to exceed fifty thousand dollars ($50,000). Adopted.

A communication signed by Mr. T. W. Valentine, Principal of Public School No. 19, and twenty-nine associate teachers, was received and read, calling the attention of the Board to the condition of the building, its unfitness and inadequacies for the purposes of the district.

The communication was a lengthy one, and very fully set forth the facts, and urged upon the Board the wisdom and necessity of providing new and suitable accommodations for the large number of children in the neighborhood.

The reading of the document and a question as to its proper disposition led to considerable discussion, in which the chairman of the school, Mr. J. W. Flaherty, maintained the right of the teachers to address the Board on matters involving the interest of the Board, and of education, and moved its reference to the School-house Committee.

The motion was, however, amended by Mr. Forman, to lay on the table, and was so disposed of.

The following was received from the Superintendent:

OFFICE OF THE
SUPERINTENDENT OF PUBLIC INSTRUCTION,
BROOKYLN, 3d May, 1875

To the Board of Education of the City of Brooklyn:

GENTLEMEN—I desire to correct a misapprehension which seems to exist regarding the printing of my annual report for 1873. The manuscript report was laid on the President's desk at the meeting of April 7th, and, in accordance with the rules of your Board for eighteen years, sent by him to the Printing Committee without objection from your members. In compliance with the direction of that Committee, I caused it to be printed and laid on the desks of the members at the meeting in May. No part of the report was permitted by me to be published, nor was any part of it so published before it was in possession of your members. There is not a word or line of it slanderous or reflecting upon the character of the public schools, and only that just criticism which an honest and faithful public officer should subject the objects of his supervision is permitted in it.

This is the judgment of a committee of your Board, after a severe criticism, which was certainly not partial to me; and this judgment was affirmed by your Board by a large majority. A resolution passed at the last meeting of your Board, seems to contemplate the possibility of some surreptitious use of the matter of my report, by your Superintendent.

I am sure the members of your Board, with which I have been associated for twenty years, could not apprehend that I would now forfeit their esteem by making any use of my report other than that contemplated by your Board. The public, however, without this assertion, would believe that I stand under your rebuke for some violation of propriety,

Very respectfully,

[Signed.] THOMAS. W. FIELD, Supt.

"MR. CULYER—I regret very much, that the Superintendent has thought it necessary to send this communication to the Board at this time. Of course, it is needless for me to ignore the fact, that it is in response to a resolution offered by me at a previous meeting, and unanimously adopted by the Board.

"My anxiety was that the forthcoming report of the Superintendent should not go out to the public without such examination as it was proper that it should receive, in view of the nature of the annual report of last year, in important particulars, involving the character and reputation of the schools of this city, our teachers, and every one in any way connected with the administration of Public Education. Mr. Fields' judgement in the matter was opposed by every prominent Principal of the city, and the majority of this Board, and, despite the statement in this communication, he was forced to modify the objectionable portion of his report, by a committee to whom the matter was referred.

"I do not question his motives, I do his judgment, in this matter, and claim the right, being equally responsible for the good reputation of our schools, that anything derogatory to their good name shall be unjustly said, without a protest."

Mr. Garret Bergen supported Mr. Culyer in the statement that the Superintendent's report, of last year, had been accepted only after considerable modification, and claimed that the Board exercised an inherent right to criticize the action of its subordinates.

Mr. Rhodes questioned the right of the Board to alter or amend the report of the Superintendent, and on motion of Mr. Carroll, the communication was ordered on file.

Subsequently it was resolved, That the report be printed and discussed with the budget, at the meeting of the Board on Tuesday next.

The President announced that he had appointed Messrs. Burr and Flaherty, to fill the vacancy in the Local Committee of No. 31. occasioned by the resignation of Messrs. Hall and Maujer.

Mr. Ammerman, on behalf of the Local Committee of No. 12, asked for and obtained authority, in conjunction with the Teacher's Committee: to appoint a male Vice-Principal, at a salary not to exceed $1,500; the case being an exceptional one, and designed to meet a peculiar condition.

STUDIES OF THE ACADEMIC GRADE.

Mr. Garret Bergen presented the following communication from the Principals of the

Public Schools, and teachers of the academic classes:

BROOKLYN, April 29, 1875.

To the Board of Education:

GENTLEMEN—We, the Principals of the Public Schools, and teachers of the academic classes, beg leave to call the attention of your honorable body to the requirements made in regard to the pupils under our charge.

According to the rules now in force, they are expected in the brief space of two years to prepare themselves for a thorough examination in the studies of their own grade, beside keeping up careful reviews of studies previously pursued.

Considering the age and capacity of our own scholars, their requirements exceed those in either colleges or high schools. In most of these institutions examinations are made annually, or semi-annually, and any student passing satisfactorily in the studies of the previous term of one year, or six months, as the case may be, is excused from further attention to such branches—his final graduation depending upon his standing in the work of the term immediately preceding.

We are fully convinced that the work of our grade, under the present regulations, cannot be accomplished without an undue strain upon the nervous system, at a most important period of life.

Moreover, if we were willing to risk the health of our pupils, we still consider that it would be an impossibility for them to perform thoroughly the prescribed work, however earnest their endeavors, and it seems to us that by attempts to do what we feel, at the outset, is impossible, we foster in the children habits of superficial work, which will be a lasting detriment to them in any occupation they may choose hereafter.

We hope that a careful consideration of this subject will induce your honorable body to adopt such measures as will relieve us from the fearful responsibility we are now compelled to assume.

To this end permit us respectfully to suggest that in our opinion, formed from our experience in teaching the academic grade, and also from a very careful consideration of the subject recently, the work of the grade can be advantageously performed in the following manner:

Permit pupils, on entering the academic class, to discontinue geography and United States history, and let geology and trigonometry be omitted from the grade. During the first year, let the pupils complete certain prescribed studies, and at the end of that time, if a satisfactory examination be passed in them, let them be discontinued. Let the remaining studies receive attention during the second year, and make graduation depend on proficiency in them only.

[Signed by thirty-five principals and teachers.]

Mr. Bergen moved the reference of the communication to the Teacher's Committee and Superintendent for report, which motion, after some discussion and opposition, finally prevailed.

Mr. Maujer offered the following:

Resolved, That the Local Committee of School No. 18, be and is hereby directed to organize and open the new branch primary of said school, on Stagg street, and to employ such additional teachers as may be necessary, with the sanction of the Teachers' Committee.

Adopted.

INCREASE OF SALARIES.

Mr. Flaherty offered the following:

Resolved, That the salary of Sarah S. Hunt, Principal of Primary No 4, be and is hereby fixed at $1,500, and the salary of Augusta Cassidy, Vice-Principal of the same school, is hereby fixed at $900, both to take effect from the 1st of May, 1875. Adopted.

TREES FOR NUMBER TWO.

Mr. D. Bergen offered a resolution that $100 be expended in planting and boxing trees around Public School No. 2.

Mr. Rhodes thought the expenditure unnecessary for the present, and a motion by Mr. A. B. Martin, to reduce the amount to $50, was lost, and the resolution, as presented, was adopted.

Resolutions presented by the Local Committees of the schools were adopted, authorizing the employment of additional teachers in schools No. 6, and Primary No. 7.

Dr. Shepard offered the following:

Resolved, That the Local Committee of Colored School No. 4, together with the School House

Committee, be empowered to secure suitable apartments for the use of Colored School No. 4, at a rental not exceeding the sum paid for the rooms at present in use.

An amendment, offered by Mr. Libby, and accepted by Dr. Shepard, to the effect that this school should be abolished after vacation was passed.

FREE BOOKS.

Mr. Libby gave notice of his intention to move that the sum of $60,000 be placed in the budget for the purpose of supplying all the pupils attending the public schools with books free of cost. He said that having examined the subject, he was convinced the time was coming when every child would ask for books free of cost, as the delicacy supposed to have existed on that point was fast disappearing.

THE BUDGET FOR 1876.

On motion of Mr. Murphy, a special meeting was ordered to be held on Tuesday next, for the purpose of taking action on the schedule and estimate of money for school purposes for the year 1876, made by the Finance Committee, and based on the requisition of the standing and local committees, copies of which were to be found upon the desks of members.

On motion, it was resolved to spend a sum not to exceed $100 in binding books in the libraries in the Eastern District schools, and to advertise for proposals to furnish coal to the Department for 1875 and 1876.

The Committee to whom was referred the request of Superintendent Field, asking that additional accommodation be provided for the annual examination of the academic pupils, reported in favor of fitting up rooms in the Prospect street school.

The appointment of Miss Louisa Smith, as teacher of drawing, was made permanent by the Board.

The Finance Committee made a usual monthly report of bills audited for payment, which were adopted by the Board; and the Teachers' Committee reported the following resignations, promotions, and appointments for the month:

RESIGNATIONS.

No. 11, Miss C. Van Tuyl, First Grade Grammar, March 1. No. 21, Miss L. A. Martin, Fourth Grade Primary, March 31. No. 27, Miss M. F. Harman, Fourth Grade Primary, April 1. No. 32, Miss J. C. Frisbie, First Assistant Grammar, April 1. Primamary 7, Miss E. Schenck, Sixth Grade Primary, March 1.

PROMOTIONS.

No. 11, Miss M. E. Shannon, to First Grade Grammar, vice Miss Van Tuyl; March 1, Miss M. L. Kenny, to Second Grade Grammar, vice Miss Shannon; J. K. Leary, to Third Grade Grammar, vice Miss Kenny; Miss E. Churchill, to Fourth Grade Grammar, vice Miss Leary. No. 21, Miss E. Thomas, to Fourth Grade Primary, vice Miss Martin, April 1; Miss E. C. Bingham, to Fifth Grade Primary, vice Miss Thomas; Miss M. A. Gormly, to Fifth Grade Primary, vice Miss Bingham; Miss H. L. Durand, to Sixth Grade Primary, vice Miss Gormly; Miss E. Luengene, to Sixth Grade Primary, vice Miss Durand. No. 23, Miss E. M. Sawyer, to First Assistant Grammar Department, vice Miss Frisbie; Miss M. A. Foote, to First Grade Grammar; Miss E. J. Lewis, to Second Grade Grammar, vice Miss Sawyer; Miss J. C. Van Pattern, to Third Grade Grammar, vice Miss Lewis; Miss M. A. Murphy, to Fourth Grade Grammar, vice Miss Ryder; Miss F. N. Conklin, to Fifth Grade Grammar, vice Miss Murphy; Miss C. S. Gray, to First Grade Primary, vice Miss Conklin; Miss Catharine Hall, to Second Grade Primary, vice Miss Gray; Miss Cath. Newcomb, to Third Grade Primary, vice Miss Hall; Miss E. M. Duffy, to Fourth Grade Primary, vice Miss Newcomb; Miss D. E. Barnicle, to Fifth Grade Primary, vice Miss Duffy: Miss A. S. Pentney, to Sixth Grade Primary, vice Miss Barnicle. Primary 14, Miss A. A. Hand, to Sixth Grade Grammar (grade raised), March 10; Miss A. M. Walsh, to First and Second Grade Primary: Miss M. E. Doherty, to Third Grade Primary; Miss Lizzie Lockwood, to Fourth Grade Primary; Miss Henrietta Schwartz, to Fifth Grade Primary.

APPOINTMENTS.

No. 11, Miss Emerette Schenck, to Sixth Grade Primary, March 1. No. 21, Miss Kate A. Kelly, to Sixth Grade Primary, vice Miss Luengene, April 1. No. 27, Miss H. W. Newmann, to Fourth Grade Primary, vice Miss Harman. No. 32, Miss A. S. Pentney, to Sixth Grade Primary, January 1.

TEMPORARY APPOINTMENTS.

No. 11, Miss Rosa Gorvan, to Fifth Grade Grammar, March 8. Primary 7, Miss Carrie Staley, to Sixth Grade Primary, March 1.

The report was accepted and adopted.

SALARIES OF THE LADY TEACHERS.

Mr. Bergen offered the following:

The Committee on Teachers and the Committee on Finance, to whom was referred the subject of the application of the teachers of

academic classes, and other lady teachers, for an increase of salary, on page 85 of the printed minutes, respectfully report that they have given the matter due consideration, and recommend that the salaries of academic teachers be fixed at $1,200 from January 1, 1876; intermediate teachers, including principals of female departments, at $1,200 per annum from January 1, 1876; primary schools, having an average attendance of 400 scholars and over, be fixed at $1,200 per annum from January 1, 1876, and primary principals of schools, having an average attendance of less than 400 scholars, be fixed at $1,000 per annum from January 1, 1876, provided that the Board of Estimate shall grant the money asked for the aforesaid increase.

The Committee offer for adoption the following resolution:

Resolved, That $20,000 be placed in the financial estimate for 1876, to meet the increase of teachers' salaries proposed above.

Signed by the Committee.

The matter was laid over to be taken up in connection with the consideration of the Budget.

On motion, the consideration of the annual report of the Superintendent was laid over until the special meeting.

The following bids were received for furnishing supplies of washbowls, door-mats, bells, brooms, dippers, feather dusters, twine, dust pans, scrub brushes, etc., for one year:

Moses Kessell	$3,504 15
Harrison & Bros	3,429 20
Benham & Stoutenborough	3,358 83
Edward McNamara	3,649 45
James McKee's Sons	3,351 25
Fitter & Lynns	3,320 00

They were referred to the Supply Committee, to award the contract to the lowest responsible bidder.

THE DIFFERENCE BETWEEN A MEMBER AND AN EMPLOYE.

Mr. Ammerman offered the following:

Your Committee, to whom was referred the following resolution, "*Resolved*, That a committee of seven be appointed to inquire whether any action of this Board is necessary in the matter of any differences between a member and an employe of this Board," respectfully report that upon investigation they find that the differences referred to in the foregoing resolution between one of the members of this Board and one of the employes, in nowise relates either to the official acts or the official conduct of said persons, but is wholly unconnected from matters within the jurisdiction of this Board.

Your Committee therefore ask to be discharged from the further consideration of the subject.

Respectfully submitted.

[Signed.] A. AMMERMAN,
J. W. FLAHERTY,
W. P. LIBBY,
L. MAUJER,
W. M. THOMAS,
THOMAS CARROLL,
THOMAS MCGRATH.

On motion, the report was accepted and the Committee discharged, and the Board adjourned to meet on Monday, May 11, for the consideration of the annual budget, etc.

A SPECIAL MEETING was held on Tuesday, May 11th, at 4 P. M., Mr. E. J. Whitlock, President, in the chair; the following members absent: Messrs. A. B. Baylis, J. S. Burr, E. B. Cadley, L. V. D. Hardenburgh, T. Kinsella, D. Maujer, T. O'Brien, Jr., E. Rowe, J. G. Rosman, and G. H. Smith.

The minutes of the preceding meeting having been read and approved, the consideration of the annual budget, which had been made the special order of business for this meeting, was taken up, discussed and acted upon, item by item, as presented by the Finance Committee, with such alterations and amendments as met the approval of the Board.

The consideration of the annual report of the Superintendent, which was postponed at the last meeting, was again put off to the next regular meeting in June, and made the special order of business after the reading of the minutes.

The Board then adjourned.

NEW YORK BOARD OF EDUCATION.

A regular meeting of this Board was held at their room, corner Grand and Elm streets, on Wednesday, May 5, at 4 P. M.

President Nelson in the chair.

The minutes were read, and the credentials of the newly-appointed Commissioner, Mr. William Wood, were read, and he was appointed to fill the place left vacant by the death of Mr. Farr, on the Special Parochial School Committee, and the regular committees to which the deceased belonged.

A petition was received from the colored residents of the Eleventh Ward, requesting the establishment of a school on the East Side for colored children. The matter was referred to the Committee on Sites and Buildings.

The Superintendent of Truancy reported the investigation of 566 cases, from April 21 to May 4, inclusive, 408 of which were kept at their homes through sickness, poverty, etc.; 158 truants were habitual non-attendants, 123 of whom were returned to the schools, and two committed to the care of the Department of Charities and Correction.

A memorial on the parochial school proposition which had been extensively circulated, and signed by about 300 persons, was read and referred to the Special Committee having the subject under consideration. It requested the Board to meet the proposition with prompt denial. The following is the substance of the arguments of the memorialists: That the present school system in this city is the best one of all now in use. That the free education of all children in the same schools and in the same studies, tends to the culture of that common sympathy and union vital to the security of peace and social order in the Republic. That the appropriation of public money for the support of schools under one or another religious sect would disintegrate and destroy the public school system, making it necessary to yield to similar demands from all sects, parties, and societies. That the proposal to support Catholic schools by public money, if granted, would introduce a religious controversy detrimental to the peace of the community. That acquiescence with the proposals is strictly prohibited by the school acts. Among the first signers of the document are Rev. Drs. William Adams, S. I. Prime, John Hall, S. D. Burchard, Rogers, H. D. Ganse, and other prominent Presbyterian clergymen.

The Board then resolved itself into Committee of the Whole, and resumed the discussion on the report on the Committee on Course of Studies in the matter of German and French in the public schools. The debate assumed, in great part, the character of a personal discussion among the members of the Board. The question of the teaching of French in the schools was scarcely touched upon, the teaching of German forming the chief subject of debate. Commissioner Baker considered that the admission of German as an element of public education would benefit the German children chiefly. He could not see how it would tend to advance or improve English studies. Latin, French and German should be separate studies in separate schools, and not serve as an obstruction to studies that were more necessary. Commissioner Klamroth read several letters addressed to him, strongly recommending the introduction of the study of German in the public schools.

Commissioner Mau thought that the present system of instruction, if fairly and fully carried out, would be preferable to and cheaper than the new system proposed. The proposed system could not be said to be compulsory. He thought that French should not be coupled with German. The numbers of the different nationalities were so utterly disproportionate that the French element did not practically enter into the question in this city. He thought that every possible inducement should be offered to the Germans that would bring them within the limits of the common school. He objected to any measure that would tend to perpetuate a system of special teachers. When the by-laws were under consideration, the Committee were convinced that a class of teachers would soon be introduced into the schools who would be perfectly competent to teach the German language, without making it necessary to introduce special teachers for that puspose. By retaining the old system, he thought that about $40,000 would be saved.

At this point, Commissioner Wetmore moved to report progress. Commissioner Herring moved, as an amendment, that the subject be made a special order of business to be con-

sidered at the next regular meeting of the Board. The amendment was carried ; and after the transaction of further routine business, the Board adjourned.

The Board met on Wednesday, May 19, at which, however, no business of special interest was transacted outside of a resumption of the discussion on the question of German in the schools. Previous to its being introduced as the special order of the day, the monthly report of Superindendent Kiddle was read. It set forth that examinations were held in thirty-nine schools, situated in the Sixth, Seventh, Ninth, Twelfth, Fifteenth, and Twenty-second Wards. In these schools 408 classes were examined, in all of which, except eighteen, the instruction was found to have been efficient ; in the eighteen it was to a great extent defective. Twenty-four classes were wanting in proper discipline.

A communication was reeeived from the Memorial Committee of the Grand Army of the Republic, extending an invitation to the Board to join the ceremonies on Decoration Day.

NEW JERSEY.

The annual meeting of the Board of Directors of Education for Jersey City, was held at their rooms in Bay street, on Monday evening, May 3d, at 7 1-2 o'clock.

Director Wm. S. Lyon was elected President of the Board for the ensuing year, and on assuming the office, made a long and interesting address, particularly devoted to local educational interests, with which he is thoroughly acquainted.

Mr, John Rowe was elected Clerk of the Board for the ensuing year, in place of Martin Finck, and after the transaction of general business, the President announced the following Committees for the ensuing year. The Board adjourned.

COMMITTEES :

Finance—McGrath, Hollins, Sanborn.
Teachers and Salaries—Mercein, Thomas, McGrath.
Books, Stationery and Music—Hollins, Mercein, Thomas.
Text Books and Course of Study—Sanborn, Pangborn, McGrath.
Inventory and Appraisement—Semler, Chapman, and McDonald.
Printing and Blanks—McDonald, McGrath, Jewell.
Free Library—Chapman, Hollins, Pangborn.
Furniture and Repairs—McGrath, Pangborn, Heins.
Heating and Ventilating—McDonald, Heins, Mercein.
Janitors and Janitors' Supplies—Heins, Jewell, McDonald.
Plans of New Buildings—Sanborn, Semler, Jewell.
Study of German—Semler, Heins, Sanborn.
Normal School—Jewell, Sanborn, Thomas.
High School—Thomas, McGrath, Mercein.
Evening School—Pangborn, Semler, Hollins.
Annual Report—Chapman, Mercein, Hollins.
Schools 1 and 3—Mercein, McGrath, Pangborn.
Schools 2 and 21—McGrath, Pangborn, Mercein.
Schools 4 and 19—Hollins, Pangborn, McDonald.
School 5—McDonald, Hollins, Mercein.
Schools 6, 9 and 15—Jewell, Hollins, Semler.
Schools 7 and 17—Chapman, Semler, Jewell.
Schools 8 and 10—Semler, Chapman, McDonald.
Schools 11, 12 and 16—Thomas, Sanborn, Jewell,
Schools 13 and 14—Sanborn, Heins, Thomas.
Schools 18 and 20—Heins, Thomas, Sanborn.

LONG ISLAND HISTORICAL SOCIETY.

On May 11, the Hon. Henry R. Pierson read an interesting paper on the subject of "Railroads," before the Society, in the Chapel of the Packer Institute.

On the same evening, the annual election of officers took place, and resulted in the selection of the following gentlemen :

For Directors—A. A. Low, Henry D. Polhemus, James B. Taylor, S. B. Chittenden, Camden C. Dike.

For Counselors—Kings County—Hon. John A. Lott, Rt. Rev. A. N. Littlejohn, D.D., Hon. Tunis G. Bergen, Rev. Frederick A. Farley, D.D., Benjamin D. Silliman, Darwin G. Eaton.

Queens County—William Cullen Bryant, Henry Onderdonk, Jr., Henry W. Eastman, John Harold, Hon. L. Bradford Prince, Solomon Townsend.

Suffolk County—Hon. John A. Dix, James H. Tuthill, Hon. J. Lawrence Smith, Rev. Epher Whitaker, William S. Pelletreau, Henry P. Hedges.

The Natural History Section of this Society, held its regular meeting in April, on the 27th of that month, at the rooms of the Society, cor. of Court and Joralemon streets. Among other matters of interest in the proceedings, Col. Nicholas Pike, U. S. Consul at Mauritius, read a paper on the fauna and flora of the Islands

of the Indian Ocean, and graphically described the coral formations of the neighborhood.

At the regular meeting of the Society, held in the Chapel of Packer Institute, on Tuesday evening, May 25th, Dr. I. I. Hayes, the distinguished explorer, gave an account of his recent trip to Iceland, and gave interesting and entertaining illustrations, with the camera, of Icelandic scenery.

MERCANTILE LIBRARY.

The comprehensive catalogue recently prepared by Mr. Noyes, will soon be ready for issue.

The annual report of this institution, recently ordered to be printed, is now ready.

THE AMERICAN ETHNOLOGICAL SOCIETY.

A meeting of the Society, which, in America, corresponds to the celebrated conclave of savans who formerly assembled at the residence of Sir Joseph Banks, and more recently at the Duke of Devonshire's, was held in this city last month, at the house of Colonel Chas. C. Jones, in Clinton street. The American Ethnological Society has for thirty years kept its central station in the city of New York, where its social and scientific meetings have been held with but two exceptions, one of which is the meeting here written of, in Brooklyn. These re-unions have been looked upon as furnishing opportunities of the most agreeable social intercourse for gentlemen of literary culture and scientific acquirement, who have a common ground for consultation and discussion. The little formal scientific prelude which is permitted, forms a sort of introduction, which leaves every one free to pursue his own course, and so adds to the general enjoyment.

The initial object of this Society was the investigation of the history and progress of man from the savage to the civilized state; the peculiarities which distinguished a lost race, as identifying it with its representatives in the present; impinging points between the races which have disappeared and those with whose history we are familiar. The research and learning which these studies have involved, form the bond of affiliation between men of science in all nations. The Scandinavian Royal Society, in Copenhagen; the French Academy, and the Royal Society, in Prussia, hold intimate relations with the Society Ethnographische, in Berlin, and with the conclave of scientific gentlemen who met in the house of Colonel Jones on Thursday evening. It is the tradition of the Society, which custom has sanctified into law, to

DISPENSE WITH PUBLIC MEETINGS

and hold their seances only at the residences of their members.

NEW YORK HISTORICAL SOCIETY.

A regular meeting of this Society was held in May, at their rooms, Mr. James W. Buckman, Vice President, in the chair After a brief routine of business, James Parton read a paper on Manners and Morals in the Last Century, treating in an entertaining and instructive way of some of the old customs and notions, incidents regarding alchemists, methods of medicine in old times, of people of a hundred years back afraid of the progress of morals, etc., etc.

The Society have issued in very neat pamphlet form, the address, delivered by Dr. Osgood, on the occasion of the reception of Crawford's statue of the Indian, presented by Frederic De Peyster, to the New York Historical Society, April 6, 1876, heretofore noted in this Journal.

The subject is "Thomas Crawford and Art in America."

THE AMERICAN MUSEUM OF NATURAL HISTORY.

A bill recently passed the Legislature, authorizing the Controller of New York City to issue bonds to the amount of $200,000 for the purposes of establishing and equipping the Museum and Natural History Building in Central Park.

MR. SOUTHWORTH, Secretary of the Society, has in press a work on African travels—a personal record of his journey in Africa.

AMERICAN GEOGRAPHICAL SOCIETY.

An address was delivered before this Society, at Association Hall, on the 25th inst., by Prof. Felix Adler, of Cornell University. Subject: "The Influence of the Physical Geography of Palestine on Hebrew Thought," with illustrations of scenery, etc.

AMERICAN SOCIETY OF CIVIL ENGINEERS.

This Society has recently removed to its new rooms, No. 4 East 23rd street, Madison Square—their old quarters in the Chamber of Commerce building not being large enough for the purposes of the organization.

The Society are preparing for its annual convention, to be held at Pittsburgh, June 8, from which point a series of excursions, already organized, will start.

Their sessions will be held in the Municipal Hall of the city.

Visits to the coal mines, iron works, and manufacturing establishments in the vicinity, will be frequent, and afford opportunity for securing much valuable and instructive information. It is expected to be one of the largest and most valuable meetings ever held by the Society. The Secretary, Mr. Leverich, has been untiring in his efforts to secure this result.

METROPOLITAN MUSEUM OF ART.

The annual meeting of the Metropolitan Museum of Art was held Monday evening at the Museum, New York. The Treasurer, F. W. Rhinelander, reported that the receipts of the year, including money on hand May 1, 1874, were $166,719.29, while the expenses were $66,640.23. Mr. Wm. C. Prime, First Vice-President, read the report of the Trustees, in which were included the following statements:

The Trustees expressed their satisfaction with the work of the past year. The galleries of the Museum have been filled during the year with works of art, and if the space at command were much greater it would immediately be filled. The public appreciation of the Museum has been shown in the large attendance of visitors, and careful examination of works made by them. The attendance on one public holiday was 7,000, and the average attendance on other days has been 52, exclusive of members and visitors presenting patrons' tickets of admission. The attendance on the free day of each week has been 1,028.

Mr. Prime then discussed at some length the propriety of making the history and principles of art a branch of all education, arguing in favor of this, however partial such education must of necessity be. Measures were taken to free the Museum of its debt, which amounts to $40,000, $15,000 of which being due to Gen. Cesnola. Fifteen of the members subscribed $1,000 each, the conditions of the subscription being that it should not be binding until $25,000 were raised in that way.

STATE TEACHERS' ASSOCIATION meets at Fredonia, July 27th, 28th and 29th.

Teachers can apply to Dr. Cruikshank, for all needed information.

BROOKLYN JUVENILE HIGH SCHOOL held its Twenty-first Anniversary this month. Appropriate exercises commemorated the attainment of its majority, so that it, by law, starts out with recognized strength and vigor.

THE COOPER UNION FREE SCHOOLS held their exhibition on the evenings of May 27th and 28th, with the commencement proper on May 29th, in the large hall of the Institute.

PACKER INSTITUTE.—Hard work in school hours, and sketching parties to Prospect Park, is the order of the day. Pleasure and instruction combined.

ADELPHI ACADEMY.—A lecture this month, on the "Life and Times of Richard Brinsley Sheridan," by Mr. H. Carpenter, of England, interested and entertained a large and appreciative audience at this Institute.

OLD PUBLIC SCHOOL NO. 1.—The old frame building which originally served in place of the brick building, corner of Concord and

Adams streets,and was removed to the corner of Flatbush avenue and Nevins street many years ago, may still be seen in a good state of preservation.

PUBLIC SCHOOL NO 2.—The new building of Public School No. 2, located on Forty-seventh street, near Third avenue, was opened this month. Mr. DeHart Bergen, the Chairman of the Local Committee, read an account of the school, its origin and progress, and addresses were read by his associates, Messrs. Garrett Bergen and Thos. McGrath and others.

TEACHERS' INSTITUTES.

The Queens County Teachers' Institute was held at Roslyn on the 10th inst., and continued in session for two weeks. We have received no accounts from its officers, and are therefore unable to give any details to our readers.

We believe the Institute was conducted by Professor Venill, assisted by Mrs. Knox, in which case we feel certain that the exercises generally must have been satisfactory.

WESTCHESTER COUNTY.

The Teachers' Institute for this County, for 1875, was held at New Rochelle, commencing on Monday, the 17th inst., and closed its session on Friday, the 21st.

The exercises were under the direction of Professor Henry R. Sanford, of the Fredonia State Normal and Training School, one of the most intelligent and genial educators of the State.

The School Commissioners of the County, Messrs. Joseph H. Palmer, Casper G. Brower and Joseph Barrett, efficiently seconded Mr. Sanford's efforts, and a series of instructive and entertaining sessions made up one of the most successful Institutes ever held in the County. About 200 teachers were in attendance.

Details of the daily session, promised by the Secretary, have not reached us in time for this number.

SANITARY ENGINEERING.—The second meeting of the New York Society of Practical Engineering was recently held in the rooms of the Geographical Society, at the Cooper Union, with James A. Whitney, the President, in the chair. A paper upon "The Practical Aspects of Sanitary Engineering" was read by Charles J. Moore, civil engineer.

THE NATIONAL EDUCATIONAL ASSOCIATION.—The Officers and Counsellers of this Association decided at their last meeting, by a vote of thirty-two to fourteen, to hold their next meeting at Minneapolis, Minn.; the time being fixed for August 3, 4 and 5.

PUBLIC SCHOOL NO. 12.—The new building in Adelphi street is understood to be in readiness for use, and it is expected to occupy it during the first week in June, under the management of Mr. James Cruikshank, LL. D., who supercedes Mr. Adams, as Principal. Mr. Adams, who is in feeble health, will remain in the school as an associate, with restricted responsibilities and opportunities for leisure, which will be favorable to the recovery of his health.

PRIMARY NO. 7.—*Vāle.*

VARIETY.

TO AN EARLY VIOLET.

BY A PRACTICAL POET.

False herald of the ever-treacherous Spring,
How cam'st thou here, thou wretched little cheat?
Where wert thou raised, thou rath, precocious thing?
No mossy bank e'er grew a flower so neat.
Glass and good gardening alone could bring
Thee here so early. Still, thy scent is sweet;
And for thy fragrance I must be contented.
You floral humbug! Why, you're only scented!

—We have not had time to describe the pictures now on exhibition in New York and Brooklyn, and, therefore, leave it to the judgment and taste of our readers to select for themselves, those pictures, which, as the ancient Greek sculptor would say, fill the eye best. We offer, however, a graphic description of a few pictures, that not having been finished in time for acceptance at the current exhibitions, the public may not lose all knowledge of them.

No. 1—"Gowanus Creek at Low Water," by Splasher.

The realistic power of this work—Splasher's greatest effort—is extraordinary. The dead dog, floating calmly on the muddy current, is depicted in the most vivid manner, and the loose oyster shells, and other debris on the bridge approach, are painted with perfect finish. Nothing could be truer to nature than the coloring of the slimy weeds that cling to the half rotten piles. They wriggle and writhe like life itself. The realistic character in which the picturesque canal boats, waiting for the tide to rise, is painted, is wonderful. This is, indeed, a great work of art, destined to make Splasher's name immortal. We regret that Splasher did not succeed in getting hung.

No. 2—"A Sunrise," by Bungstarter, N. A.

The great charm of this picture is its indefiniteness. Nowhere do we get a distinct outline, and this is as it should be. Having ourselves seen the sunrise on the Rhigi, Mount Washington, Mont-Blanc, Chimbarazo, and the Himalayas, we can bear witness to the truth of the picture in all its nebulousness. The novice might imagine that broad band of crimson to be merely vermilion, smeared with the palm of the hand, or that deep belt of purple shade merely a dash of ink accidently spilt; but a little exercise of the imagination, and Bungstarter is vindicated.

No. 3—"A Grammar School," by Birchem, A.

The casual spectator might imagine these children to be victims of hydrocephalus. The simple fact is that Birchem got his model from an Oswego High School; the picture has a double value in showing us the rapid development of intellect in these days. It is not water—it is wisdom. Birchem's children are always plump and rosy, and the naturalness with which the apparatus and other accessories of school life are painted is really refreshing. This picture has been purchased, at a handsome price, by a member of the New York School Board.

No. 4—"Mountain Scenery and Cattle," by High Art, A. No. 1, etc.

A really great picture, fourteen feet by twenty. The distant hills which serve as a background are entirely hidden in grey mist, which accounts for the bluish-white tone of the picture. It is wonderfully suggestive. We can fancy the mighty precipices—we can imagine the glittering waterfalls chasing down their ragged sides—we can—in fact, we *must* imagine them, for the artist has wisely omitted these petty details, otherwise his shaggy cattle would not have "stood out" from the canvas as they do. What spirit—what impetuosity he has imparted to the gambols of his wild cattle How playfully yonder bull thrusts his horn into the hide of his companion! Exquisitely incisive!

This surpasses nature.

We regret space will not admit of our describing several other pictures, of which we have been favored with a private view.—ED.

—Suet is the lawyer's favorite dish.

—In one of La Fontaine's fables, where the fox complained of the wolf for stealing, and the bear was judge, the result was stated in these terms:

"In short, I fine you both.
The grounds to state at large would little profit.
You, Fox, as bringing groundless charge,
You, Wolf, as guilty of it."

—General Scott used to spell "wagon" with two g's. When asked timidly by his clerk on what authority the two g's were inserted, the hero of many battles made answer: "On the authority of Lieutenant-General Scott, commanding the armies of the United States, sir." There is, however, higher authority than General Scott's for spelling "wagon" with two g's.

SHARPMAN'S REMBRANDT.

Not long ago Sharpman pulled up before an evil-scented, beetle-browed little print and picture shop in a narrow street at the back of the City Hall, New York.

He is a good judge of paintings, is Sharpman—very much so, indeed, if you take all he says of himself for gossip.

He is rather near-sighted; and as he poked his head close up to the small, blurred panes of the window, he exclaimed to little Fibbs, who happened to be hanging on his arm:

"By Jove! Look here!"

"Where?" asked Fibbs, blankly.

Sharpman says of Fibbs that he has no more idea of art than a wooden jackass—and he is not far wrong.

"There!" growled Sharpman—"there to the left. The effect of the light falling on that grand old Jewish countenance is simply marvellous! But its beauty is all lost on you, Fibbs."

"I believe you, my boy," said Fibbs, drily. He knew now what Sharpman was gushing about, and he looked highly amused.

"If that isn't an old master," continued Sharpman, enraptured, "I'll eat it and digest the canvas!"

"Likely it is," assented Fibbs.

"Remark the wonderful tone," proceeded Sharpman. "The pose of the head, how natural!"

"Well, whose head do you suppose it is, any way?" asked Fibbs, who still appeared to be enjoying a good joke in a private underhand kind of style.

"A Rembrandt, surely," asserted Sharpman, authoritatively. "Such light and shade, such depth of coloring belong alone to him."

Then Fibbs, who saw his joke couldn't go any further, let off a query which lifted the hair of Sharpman on his æsthetic cranium:

"Did you ever know a portrait by Rembrandt to take snuff?"

Sharpman started—stared—rubbed his eyes, and stared again.

"Eh?—what? Yes, confound it!" he almost screamed. "I declare I've been wasting the last three minutes in admiring a dirty, real, live, villainous old Hebrew. If this kind of thing occurs again, I shall really be compelled to take to spectacles in earnest."

ATHLETIC SPORTS FOR LADIES.—Jumping at conclusions.

Walking round a subject.

Running through a novel.

Skipping dull descriptions.

Throwing the hatchet; and, during the holidays,

Boxing the ears of troublesome younger brothers.

HOUSEHOLD WORDS.—Stop your noise! Shut up this minute! I'll box your ears! Hold your tongue! Let me be! Get out! Behave yourself! I won't! You shall! Never mind! You'll catch it! Put away those things! You'll kill yourself! Mind your own business! I'll tell ma! You mean thing! There, I told you so! I did! I will have it! Oh, look what you have done! 'Twas you! Won't you catch it, though! It's my house! Who's afraid of you! Get out of this room directly! Do you hear me? Dear me, I never did such a thing in all my born days!—*Church Union.*

SO STUPID!—"My real number is six, but my hand will bear squeezing," is what she said to a young man at a glove counter. And the great, thick-headed lunatic got her a pair of five and a half gloves without finding out how much squeezing her hand would bear. We would have worked on that job all Summer but she should have had an exact fit. Some people are so stupid.

—The best cure for dirt is a water cure.

—At a spelling match in Pulaski, Tenn., the word "sachel" was given out. It was spelled by the ex-rebel, General Taliaferro, without a "t," as Webster favors. Whereupon, according to the Pulaski *Citizen*, "the audience laid down and rolled over and laughed and bleated and roared and squealed and tittered and hunched each other, and at last subsided so that the pedagogue could be heard. He blandly informed the audience that Mr. Taliaferro had spelled the word correctly. Then they commenced to look blank at each other, and look green and foolish, and had the dry grins, and you could have heard a pin drop."

—The story about the King of Burmah, which has for some time been going the rounds of the papers, is an old one refurbished. His Majesty, so it is said, intends shortly to publish a newspaper, and those of his subjects who decline to subscribe to it are to be beheaded.

—"The Two-Oftens"—Tax-gatherers.

—The "Battle of Lexicon" still rages all over the country.

—It is said that Professor Tyndall has had ocular demonstrations of sound. He has seen his bed tick.

—A little boy in the grammar school, returned home late, Monday, to explain to his parents that he had been punished. He said: "No boy hasn't never been whipped harder than me this afternoon."

—"Kiss me!" was all she said. That was "enough said" to any young man.

—An auctioneer once advertised a lot of chairs, which, he said, had been used by "school children without backs."

—A performance of Schumann's *Rose Pilgerfahrt* has lately taken place at Berlin, in which the conductor's baton was in the hands of a lady, Frau Dreyschock, a teacher of singing in that city.

—Jemima," said a fashionable miss to her friend, "I think Charley Potts is perfectly splendid; he can get on my glove, and wears spit-curls."

—"A PARTHIAN SHAFT."—*Cook*—"Now, I'm a leavin' of yer, m'um, I may as well tell yer as the key o' the kitching door fits your storeroom!"

—"Oh, gracious, no!" exclaimed Mrs. Marrowfat to Mrs. Quoggs, raising her hands and speaking in a very excited tone. "She was so ill when her new bonnet came home, that she couldn't get up; but, dear sakes! Jane, that didn't matter nothing, for she just put her hat on, and lay with her head out of the window the whole afternoon."

—What word is always pronounced wrong, even by the best scholars?—Wrong.

—What is it which has a mouth and never speaks, and a bed and never sleeps?—A river.

"I allow that Job was patient," said an old farmer, "but he never seen a determined Shanghai hen sittin' on a nest of biled eggs."

—As an indication of the advancement that science has made recently, it might be stated that a gentleman at one of the city markets, the other day, saw half a bushel of white turnips run through a cider-mill, and half an hour thereafter noticed the same article, bottled and on sale, and labeled "Pure Grated Horse-radish."—*Boston Globe.*

—A countryman in Savannah, observing a gang of negroes laboring on the streets, each wearing a ball and chain, asked one why the ball was chained to his leg. "To keep people from stealing it. Heap of thieves about here!"

INEXPRESSIBLE.—"I really can't express my thanks," as the boy said to the schoolmaster when he gave him a thrashing.

—A bootblack followed a man around for several minutes, repeating the inquiry, "Have a shine?" and finally the man exclaimed, "Didn't I tell you five minutes ago that I didn't want my books blacked?" "You did, mister," replied the boy, "but I thought you might be lying about it."

—Somebody wants "a young man to look after a horse of the Methodist persuasion."

Book Notices.

Boys and Girls in Biology. By Sarah Hackett Stevenson. New York: D. Appleton & Co.

This is a very handsome little work on an interesting subject, Biology, or simple studies of the lower form of life. The possibility of interesting young children in studies of this character, however, we consider to be remote, while the work itself may be justified for the reason that it may prove of service to children of a larger growth than the author at first contemplated. The illustrations are of the first order, and by a master hand, and naturally so, as both author and designer are enthusiastic followers of the great Huxley. These drawings, however, notwithstanding the fact that great pains are taken to explain them, involve a rudimentary knowledge, at least, of Anatomy, Physiology and Botany, without which, our author must admit, the study of her work, interesting as it is, cannot be successfully accomplished.

The ordinary reader, however, needs to have access to such books, and we welcome it, and say there is sufficient reason for it to be.

Science Primers. Astronomy. J. M. Lockyer.

This is the seventh of a series of interesting primary works, designed to interest the ordinary reader in scientific subjects, at the same time, by simple illustrations and the avoidance of technical language, impart some really valuable information on important subjects. The book is neatly bound in limp covers, and published at a price that all can afford to become familiar with the ordinary facts and figures of science.

Arithmetic: Robinson's Shorter Course. New York and Chicago: Fish, Ivison, Blakeman, Taylor & Co.

Robinson's Arithmetics have for a long time held a popular place among our school books.

The present course, an entirely new one, by Dan'l W. Fish, A. M., an old and esteemed resident of Brooklyn, consists of a first book for primary use, and a complete arithmetic for advanced classes, comprising together the most desirable work for school purposes now before the public.

The author, himself for many years a most successful educator, with a large practical knowledge of the needs of our schools, has succeeded in putting together, in the material composing it and its general arrangement, a work which for simplicity and consistent progression and terseness, and conciseness in statements and rules (with no confusing plethora of the latter), must, without needless argument on our part, we think, commend itself to the judgment and choice of teachers, whose duty it should be to examine with care the works of this character, prepared for their use, rather than depend upon casual comments.

The publication of the course in two volumes, is in itself a wise and thoughtful provision, in addition to which, the larger work, designed for more general use, is also published in two parts, to be had separately, for the convenience of those who do not need or who cannot afford to purchase the whole work.

The typography and binding are of such an exceptionally neat and substantial character as to predispose one in favor of the books at once. We are satisfied that these arithmetics will be cordially received by all who believe in and desire improvement and progress in school books.

The Geological Story Briefly Told. James D. Dana, LL. D. New York and Chicago: Ivison, Blakeman, Taylor & Co. 263 pp.

This little volume by Prof. Dana, of Yale, is intended for the use of beginners in the study of Geology, and for general readers.

The subject is divided into three parts. First—The rocks or what the earth is made of. Second—Geological causes and effects, or how the rocks were made. Third—Historical Geology, which gives the account of the world, from the time of Chaos until the time when man came upon to decipher, by means of the foot-prints on the rocks, the geological story of how the world was made.

In the first division, the names of the different rocks are given, together with their nature, and how to recognize them.

In the second division, the causes which have acted and are now acting on the earth are given; they are arranged so as to be easily comprehended, and are illustrated by examples of the work performed by each force.

In the third section, the first two are combined, and the student is briefly led over the entire geological field. A few pages at the end of this division are devoted to *Man*, who, Prof. Dana argues, is of divine origin, and not descended from natural causes as claimed by the Evolution theory.

This little volume is neatly printed and bound, is profusely illustrated, and cannot fail to be of use to those for whom it is particularly intended. It forms the stepping stone to Prof. Dana's higher works in Geology, or for any other formal work, specially prepared for this interesting study.

AN OUTLINE HISTORY OF THE UNITED STATES, from the Earliest Period to the Present Time. By Benson J. Lossing, LL.D. Copiously illustrated by Maps and other Engravings. New York: Sheldon & Co. 1875.

This book has been prepared to meet the demand of teachers and pupils, and the needs of our common schools, where, it is claimed, they require a book, clear and concise in all its statement of facts concerning the more prominent events in the History of the United States.

These conditions, the author, who is so well known as an accomplished writer of American History, has endeavored to treat, in the form of a pleasing narrative, while presenting the salient points of history in a manner designed to impress their relative importance upon the mind of the reader.

The large experience of the author, in dealing with statistics and the pursuit of facts, has enabled him to put together a valuable work in small compass, while subordinating, to some extent, some features which are essential in a work of this character.

The work is neatly printed and strongly bound, and will serve a very useful purpose in our schools.

We are sorry to see that our publishers will drop into portraiture, which in works of this kind, cannot but impair the dignity which inherently belongs to them.

PRACTICAL HINTS ON THE SELECTION AND USE OF THE MICROSCOPE. Intended for Beginners. By John Phin, editor of *The Technologist*. 1 vol., 12mo., fully illustrated. Price 75 cents. New York: Industrial Publication Company, 176 Broadway.

The value of the microscope, as a means of pleasant recreation, as well as an instrument of scientific research, is so well known, that it would be a waste of time to enlarge upon it. So thoroughly is it appreciated, that thousands of microscopes have been sold by our dealers, but thus far it has been difficult for the purchasers of these microscopes to obtain simple and plain directions for using them. The work before us gives, in the plainest language, very complete directions for the management of the microscope, and for collecting objects, preparing them for examination, and preserving and mounting them.

CHRISTIAN ETHICS. Dr. Gregory. Philadelphia: Eldridge & Brother. Price $1.50.

The title of this work is Christian Ethics; or, the True Moral Manhood and Life of Duty, by D. S. Gregory, D. D., Professor of Moral Science, etc., in the University of Wooster. It is intended to be used as a text book in moral science for colleges and academies, and seeks to present the most important of all sciences, or rather, perhaps, the sum or result of all sciences, that of right and noble living. The work is well written; its divisions of subjects orderly and intelligently discussed, and may be profitably read and studied by advanced pupils and adults, while it does not seem to us to be adapted to use in our ordinary public schools.

The book is neatly bound and printed, as are all the works from these publishers, and is to be had, post-paid, for the sum of $1.50.

THE NEW AMERICAN PRIMARY SPELLER, AND NEW AMERICAN PRONOUNCING SPELLER. (New American Series.) Philadelphia: J. H. Butler & Co.

These are the latest editions of the older series, and properly form a part of the series already in use in our schools. The author wisely devotes but a small space to dissertation, the desirable features of a work of this kind consisting mainly in a substantial book, clearly printed, with a good selection and variety of words, the proper study and use of which, must, in large part, be left to the judgment and discretion of the teachers.

A CHILD'S FIRST BOOK IN FRENCH. By Professor Jean Gustave Keetels. New York: Clark & Maynard.

Professor Keetels has had a long and varied experience in teaching his native language, and is the author of several successful works in use in the schools throughout this country.

We commend this very complete little work to all who seek to interest the young in the elements of the French language.

PRONOUNCING HAND BOOK. By Richard Soule and Loomis J. Campbell. New York: Lee, Shepherd & Dillingham.

This is a compilation of a large number of words often mispronounced, and of words as to which a choice of pronounciation is allowed, and can be made to serve a very useful purpose in and out of school, in correcting many but needless prevalent errors in spelling and mispronounciation.

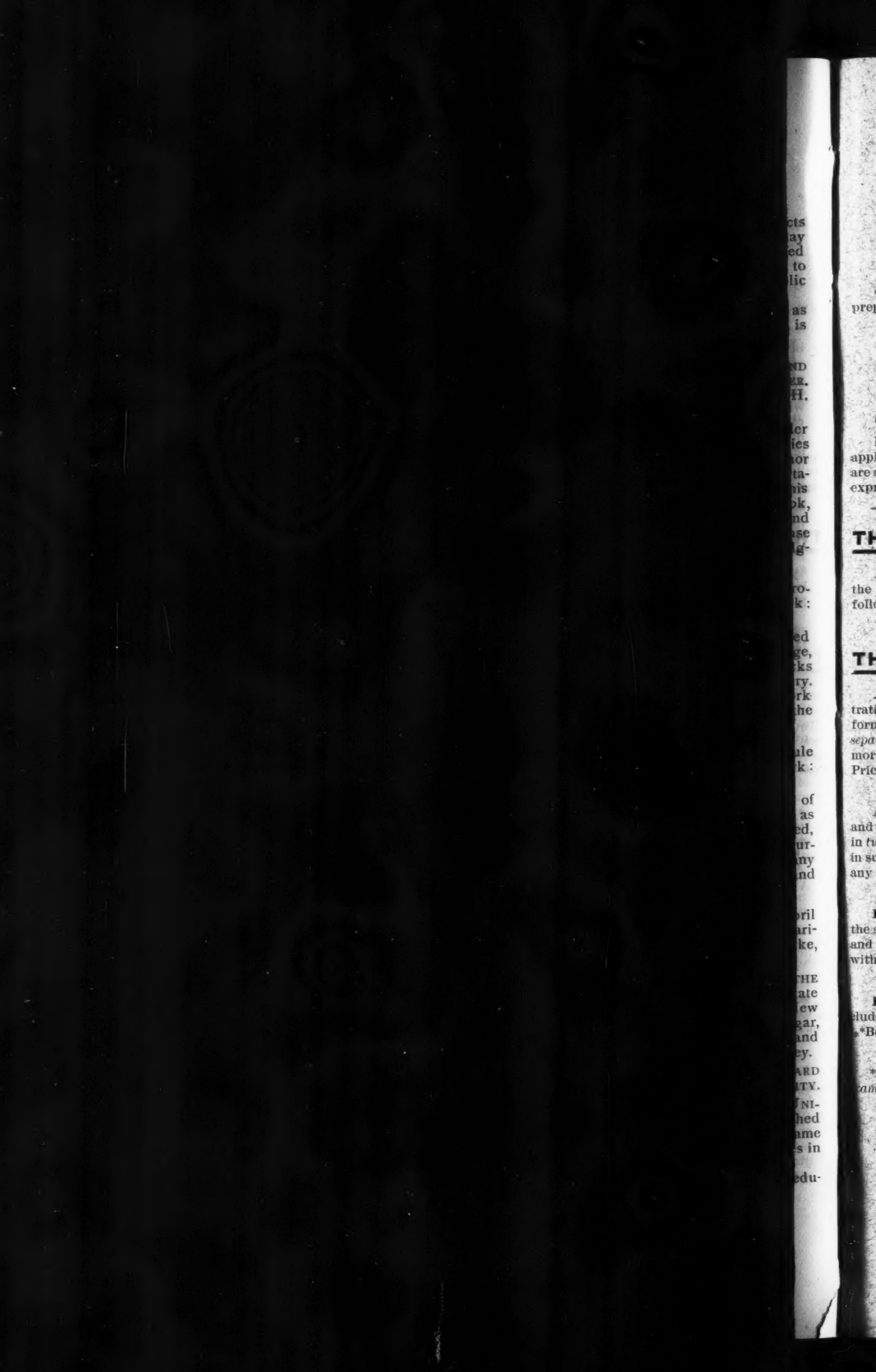
THE AMERICAN BIBLIOPOLIST for April (New York: J Sabin & Son), contains a variety of useful and interesting information alike, to the scholar and general reader.

WE are in receipt of the REPORTS OF THE STATE BOARD OF EDUCATION, from the State Superintendent of Public Instruction for New Jersey Board of Education, Mr. E. A Apgar, which very fully sets forth the conditions and prospects of public education in New Jersey.

Also, THE ANNUAL REPORT OF THE BOARD OF DIRECTORS OF EDUCATION FOR JERSEY CITY.

Also, THE YEAR BOOK OF THE BOSTON UNIVERSITY, edited by its Council and published by the Corporation; designed to serve the same purposes as the University Calandar does in the Universities of England.

It contains desirable information to educators.



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